August 23, 1996

MEMORANDUM

TO: Orville D. Green, Assistant Administrator

Permits and Enforcement

FROM: Brian R. Monson, Chief Am

Operating Permits Bureat

SUBJECT: Issuance of Tier II Operating Permit #031-00026 to

Sinclair Oil Corporation (Burley)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 of the <u>Rules for the Control of Air Pollution in Idaho</u> (<u>Rules</u>) for issuing Operating Permits.

PROJECT DESCRIPTION

This project is for the issuance of a Tier II Operating Permit (OP) for the Sinclair Oil Corporation facility, located in Burley, Idaho, in order to establish the facility as a synthetic minor source for hazardous air pollutants (HAPs). As a synthetic minor source of HAPs, the facility will be considered an "area source" for the Bulk Gasoline Distribution MACT standard. Emission sources existing at the facility are as follows: four (4) storage tanks capable of storing gasoline or distillate fuel oil grade petroleum product, three (3) storage tanks to store distillate fuel oil grade petroleum product, one transmix tank to store "slop oil", one prover tank utilized for flow calibrations, one double bay submerged top fill loading rack, and process piping fugitive emission sources.

SUMMARY OF EVENTS

On September 12, 1995, DEQ received an application for a Tier II OP. This application was declared administratively complete on October 12, 1995. Additional information was received on November 29, 1995, and on January 10, 1996. On February 16, 1996, a proposed Tier II OP was issued for public comment. A public comment period was then held from March 1, 1996, to April 1, 1996.

On March 21, 1996, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package and incorporated into the operating permit.

On April 29, 1996, DEQ received a formal request for a stay of permit issuance, which was honored. On June 17, 1996, DEQ received a submittal from Sinclair requesting revisions to the original proposed Tier II OP.

RECOMMENDATIONS

Based on the review of the Tier II Operating Permit application, additional supporting information submittals, and applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Sinclair Oil Corporation, in Burley, be issued a Tier II Operating Permit. The facility has already submitted the permit application fee of \$500.00 as required by IDAPA 16.01.01.470 of the Rules.

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cc: R. Lupton, SCIRO
OP File Manual
Source File
COF

August 23, 1996

MEMORANDUM

TO:

Brian R. Monson, Chief Operating Permits Bureau Permits and Enforcement

FROM:

Darrin A. Mehr, Air Quality Engineer

Operating Permits Bureau

Wade C. Woolery, Air Quality Engineer

Technical Services Bureau

THROUGH:

Susan J. Richards, Air Quality Permits Manager

Operating Permits Bureau

SUBJECT:

Supplemental Technical Analysis for Tier II Operating Permit (#031-00026)

Sinclair Oil Corporation (Burley)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 of the <u>Rules for the Control of Air Pollution in Idaho</u> (<u>Rules</u>) for issuing Operating Permits.

This memorandum documents the changes in the Tier II Operating Permit's (OP) after the close of the public comment period, and revised DEQ policy for issuing permits.

FACILITY DESCRIPTION

Sinclair Oil Corporation's (Sinclair) Burley, Idaho, facility distributes petroleum products received through the Chevron supply pipeline originating in Salt Lake City, Utah. Petroleum products consisting of various grades of gasoline and distillate fuel oil are temporarily stored in tanks prior to transfer to mobile carrier tanks for transport and delivery off-site.

Petroleum products consisting of various grades of distillate fuel oil and gasoline are received by the facility through a pipeline. The petroleum products are stored in any of seven (7) existing storage tanks. Gasoline is allowed to be stored in four of these tanks, and fuel oil can be stored in any of the seven (7) existing tanks. A "prover" tank is used for flow calibration, and a "trans-mix" tank is used to store "slop oil." The petroleum products are transferred from the tanks to the carrier by the loading rack system, prior to off-site transport and delivery.

Storage tanks #301, #304, #311, and #321 are capable of storing any grade of distillate fuel oil as well as gasoline. Storage tanks #302, #305, and #306 can only store distillate fuel oil.

The carrier is situated in one of the two (2) loading rack bays where one or more loading rack arms are attached to the carrier tank. Either a gasoline or a distillate fuel oil product is transferred from the storage tank to the loading rack system, which delivers the product to the carrier tank. Additives may be blended with the gasoline or distillate fuel oil product during loading of the carrier tank.

Fugitive VOC and HAP emissions occur from process equipment including valves, pump seals, flanges, open-end connections, and process drains.

PROJECT DESCRIPTION

This project is for the development of an OP that will create state and federally enforceable limitations on the facility's potential to emit hazardous air pollutants (HAPs). This permit would make the Burley facility a synthetic minor for HAP emissions, which allows the facility to be recognized as an "area source" for HAPs. Bulk gasoline distributors that are recognized as area sources of HAPs avoid the stringent control technology installation requirements of the Bulk Gasoline Distribution MACT standards.

Refer to the technical memorandum dated February 16, 1996 (Mehr and Woolery through Richards to Monson) for a description of the sources present at the facility.

SUMMARY OF EVENTS

On September 12, 1995, the Division of Environmental Quality (DEQ) received an application for a Tier II OP. This application was declared administratively complete on October 12, 1995. Additional information was received on November 29, 1995, and on January 10, 1996. On February 16, 1996, a proposed Tier II OP was issued for public comment. The public comment period started March 1, 1996, and ended on April 1, 1996.

On April 29, 1996, DEQ received a formal request from Sinclair to hold issuance of the Tier II OP. This request was honored by DEQ, and permit issuance was stayed. On June 17, 1996, DEQ received a submittal from Sinclair containing a request for revisions to the original OP.

DISCUSSION

1. Emission Estimates

Emission estimates were originally provided by Sinclair in the September 12, 1995, submittal. Additional supporting calculations and documentation were included in the November 29, 1995, and January 10, 1996, submittals.

The product throughputs for gasoline and distillate fuel oil at the loading rack were altered by Sinclair in the June 17, 1996, submittal. Revised throughputs as listed below were used in the spreadsheet that underwent review during the original public comment period.

Product	Proposed Permit Requested Throughput (U.S. gallons per year)	Revised Throughput (U.S. gallons per year)	
Gasoline	259,077,000	107,310,000	
Distillate Fuel Oil	311,199,000	462,996,000	

The intent of this Tier II OP application is to establish enforceable emission limits for HAPs below the 10/25 ton per year (T/yr) thresholds for single/aggregated HAPs. The issuance of this OP will establish Sinclair's Burley facility as an area (nonmajor) source and will exempt them from the requirements of the final MACT standard for Bulk Gasoline Distributors. The facility is a major source of VOCs, as both potential and actual annual VOC emissions exceed the 100 T/yr threshold.

Emission Estimates Conclusions

Allowable annual throughputs remained as requested in the Sinclair June 17, 1996, submittal and should allow Sinclair a comfortable degree of operational flexibility and expansion above current actual operations. Additional information is included in the attachment and the original proposed Tier II OP.

Daily throughput limits as listed in the February 16, 1996, technical memorandum will not be incorporated. Hourly emission limits were developed using the rated capacity of the emissions units/processes. The goal of the Tier II OP was intended to limit only the annual emissions of pollutants. No ambient air quality impacts were assessed for the facility, as the Permittee has stated all emissions units covered in the permit qualify as grandfathered sources.

Facility-wide annual potential emissions are:

POLLUTANT	POTENTIAL EMISSIONS (Tons per year)
Volatile Organic Compounds (VOCs)	298.39
Aggregated Hazardous Air Pollutants (HAPs)	8.38
Individual HAPs: Benzene	1.60
Ethyl benzene	0.17
Hexane	2.56
Naphthalene	0.0053
Toluene	2.39
Trimethylpentane 2,2,4 (Iso-Octane)	0.58
Xvlenes (isomers m-, o-, and p- combined)	1.07

Appendix A of the proposed Tier II OP originally contained individual HAP emission limits for hexane and toluene to demonstrate that the 10 T/yr major source threshold for single HAP emissions were not encroached upon. Hexane and toluene were the largest single HAP emissions in comparison to the other HAPs inventoried. These limits have been dropped from Appendix A of the final permit because the emission levels have been drastically reduced, and an aggregated HAPs emission limit will suffice.

Revisions to Proposed Permit Due to Supplemental DEQ Review

Equipment and emissions control devices and methods listed in the OP issued for public comment have been removed in accordance with current Department permitting methods. These items are listed here to document the existing sources and provide a basis for determining the facility's potential emissions.

The following section contains the information deleted from the proposed Tier II OP.

Storage Tanks

Tanks #301, #304, #311, and #321 are allowed to store either gasoline or any grade of distillate fuel oil. Each tank is sixty (60) feet in diameter and has an 838,437 gallon capacity. VOC and HAP emissions from these tanks are controlled by an external floating roof.

Tanks #302, #305, and #306 are only allowed to store distillate fuel oil product. Each tank is sixty (60) feet in diameter and has a storage capacity of 825,024 gallons. These tanks have a fixed roof, and emissions are uncontrolled.

Additional tanks at the facility include the Trans-mix and Prover tanks. Each of these tanks has a fixed roof, and emissions are uncontrolled. The proposed Tier II OP contained VOC and HAP emission limits for the Trans-mix tank. No monitoring of throughput was to be required for this source because an unknown portion of total throughput is water and other process wastes. Emission estimates for Trans-mix Tank #300 are:

- VOCs:
- 0.05 lb/hr and 0.21 T/yr
- Aggregated HAPs: 0.001 lb/hr and 0.006 T/yr

Loading Rack

The loading rack has two (2) bays that operate on the bottom fill method, which is the method for controlling VOCs and HAPs emissions.

Fugitive Emissions

Fugitive VOCs and HAPs are emitted from equipment at the facility. Fugitive VOC emissions were estimated to be 0.29 lb/hr and 1.26 T/yr. Fugitive aggregated HAP emissions were estimated to be 0.048 lb/hr and 0.21 T/yr. The documentation of emission factors is contained in the February 16, 1996, proposed Tier II OP's technical memorandum.

The following equipment was included in the analysis:

Gasoline Service

Pump Seals: 6
Valves: 99
Flanges: 212
Process Drains: 2
Oil/Water Separator: 0

Distillate Fuel Oil Service

Pump Seals: 3
Valves: 76
Flanges: 158
Process Drains: 0
Oil/Water Separator: 0

Summary of Changes Made to Proposed Permit

- Allowable distillate fuel product throughput increased, and gasoline decreased at loading rack.
- Allowable loading rack VOC and HAP emissions decreased by reduction of the gasoline throughputs.
- Individual HAP emission limits were removed from Appendix A of the OP.
- All facility equipment and process information were removed from the OP.
- Fugitive emission sources and emission limits were removed from the OP.
- Emission limits for the Trans-mix tank were removed from the OP.

Monitoring Requirements

Monitoring requirements for the purpose of demonstrating compliance with the annual emissions limits for the facility will consist only of monitoring of the type of product (gasoline or distillate fuel oil) and the number of gallons of each substance transferred from the supply pipeline to the storage tanks, and the amount in gallons transferred for off-site delivery through the loading rack. The product information must be monitored and recorded contemporaneously as the products are received and transferred to storage tanks, and as the products are transferred through the loading rack to off-site delivery vehicles. There are no specific daily throughput restrictions at either the loading racks or the storage tanks. Rather, the short-term emission limits are based upon the hourly capacity of equipment and the physical properties of the petroleum products. There is no feasible method for Sinclair to document compliance with the short-term emission limits. The variability in gasoline volatility, as well as seasonal temperature and throughput variations, lends itself to verification that the annual emissions limits are complied with by the facility.

For this reason, the facility will be required to monitor and record the product throughputs contemporaneously with the transfer to storage tanks and from the loading rack. This information is to be compiled on a monthly basis, and the monthly throughput totals will be compared to the twelve (12) month allowable product throughputs. Compliance will be determined on a twelve (12) month rolling summation basis, thus providing a method for determining compliance with the OP's allowable emissions for any twelve (12) month period (established after the first twelve (12) month period). This method of compliance demonstration should not place undo burdens on Sinclair, as the amounts of product received and transferred is already monitored for internal inventorying purposes.

Sinclair Burley - TECH MEMO August 23, 1996 Page 5

Sinclair will not be required to monitor the Reid Vapor Pressure and individual HAPs for this permit, because the applicant and the Department have not utilized a variable RVP and HAP content approach in developing the permit emission limits.

2. Modeling

No modeling was performed to assess the ambient air quality impacts of this facility.

3. Area Classification

Sinclair's Burley facility is located in Cassia County, which is designated as either in attainment or unclassifiable for all criteria air pollutants.

The facility is located AQCR 64, Zone 11.

4. Facility Classification

The facility is not a designated facility as defined by IDAPA 16.01.01.006.25 of the <u>Rules</u>. (Petroleum storage capacity of the facility is approximately 5.834 million gallons. Designated facility threshold is 12.6 million gallons storage capacity).

The facility is classified as an Al source due to permitted VOC emission limits in excess of 100 T/yr.

5. Regulatory Review

This Tier II OP is subject to the following regulatory requirements:

a. b. c. d. e. f.	IDAPA 16.01.01.006 & 7 IDAPA 16.01.01.401 IDAPA 16.01.01.403 IDAPA 16.01.01.404.01 IDAPA 16.01.01.404.01(c)(v) IDAPA 16.01.01.404.04	Definitions Tier II Operating Permit Permit Requirements for Tier II Sources Opportunity for Public Comment Consideration of Comments and Final Action Authority to Revise or Renew Operating
g. h. i.	IDAPA 16.01.01.406 IDAPA 16.01.01.470 IDAPA 16.01.01.650 IDAPA 16.01.01.728	Permits Obligation to Comply Permit Application Fees for Tier II Permits General Rules for the Control of Fugitive Dust Sulfur Content Limit for Distillate Fuel
k.	Section 37-2506.Idaho Code 40 CFR Part 80.27	Oil Quality Standards for Motor Gasoline and Distillate Fuel Oil-Specifications Set By American Society of Testing and Materials Controls and Prohibition on Gasoline Volatility

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.470 of the <u>Rules</u>. The facility is subject to permit application fees for Tier II permits in the amount of five hundred dollars (\$500.00). Sinclair has already submitted this payment to DEQ with the application.

Fees in accordance with IDAPA 16.01.01.525 of the <u>Rules</u> for major facilities that meet the potential to emit requirements of IDAPA 16.01.01.008.14 of the <u>Rules</u> apply to this facility. Registration of pollutants and registration fees will be established by the issued Tier II OP's allowable VOC emissions.

Sinclair Burley - TECH MEMO August 23, 1996 Page 6

RECOMMENDATIONS

Based on the review of the Tier II OP application materials and of applicable State of Idaho and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Sinclair Oil Corporation, in Burley, Idaho, be issued a Tier II OP for the sources that exist at the facility. An additional opportunity for public comment on the air quality aspects of the permit is not required. All memoranda for the project shall be provided to the public and facility for this final action. Staff also recommends that the company be notified of the pollutant registration and registration fee requirements pursuant to IDAPA 16.01.01.525 of the Rules in writing.

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cc: R. Lupton, SCIRO Source File COF

ATTACHMENT A

Revised Emissions Estimation Spreadsheet

Title V Engineer:

DM

Company Name:

Sinclair Oil Corp. Burley, Idaho

Date Created: Today's Date:

Location:

January 4, 1996 07/15/96 This spreadsheet is updated from the section specified as "Annual Average Method" on The section immediately below (monthly basis) has not been altered to reflect gasoline RVP 11. Requested throughputs of 107,310,000 gallons gasoline and 462,966,000 gallons distillate fuel oil. (listed in the Tier II Permit revision request letter received June 17, 1996/S. Greene, P.E. to O. Green)

BURLEY, IDAHO FACILITY Calculation of Loading Rack Emissions

ASSUMPTIONS

- 1. TANKS2.0 provides the monthly average true vapor pressure of the gasoline product AND the molar fraction of HAP constituents in the vapor phase of the gasoline product.
- 2. Trimethylpentane 2,2,4 is also known as iso-octane.
- 3. Discussions with EPA Region X and the resulting discussions between EPA Region X and Research Triangle Park reveal that gasoline emissions of the three Xylene isomers should be aggregated under a heading of Xylene (mixtures).
- 4. A comparison between the single "annual" and individual monthly runs of emissions from TANKS2.0 to derive vapor phase HAP and VOC percentages of composition revealed that the rounding of values due to significant figures predicts greater emissions for the detailed monthly run.
- 5. The most vital assumption made with this analysis is that it assumes an identical chemical composition throughout the year. The most accurate method for estimating all emissions would be to have samples of gasoline chemical composition for EACH of the different Reid Vapor Pressure (RVP) categories. RVP is determined by chemical composition physical properties. Therefore, the acceptance of a single gasoline chemical composition is an important assumption for DEQ to accept. The applicant has further stated that this information would be difficult, if not impossible, to deliver because they may receive gasoline product from refineries other than their own corporation's.
- 6. The loading rack emissions for Burley facility should incorporate bottom load methodology. This results in the same emission estimates.

ANNUAL AVERAGE VAPOR PHASE HAP FRACTION METHOD:

Notes and concerns:

- 1. EPA has recently made available revised interim emission factors to estimate fugitive emissions from Marketing terminals. The document is titled New Equipment Leak Emission Factors for Petroleum Refineries, Gasoline Marketing, and Oil & Gas Production Operations, February 1995. These emission factors are presented both for the screening method (where a known concentration of VOCs is emitted) and the "average" emission factor method, which requires no monitoring data). The "average" emission factor method is to be used just as in the applicant's submittal. These 1995 emission factors will replace the applicant's emission estimates that employed EPA AP-42 emission factors published in 1980.
- 2. EPA AP-42 Section 5.2 Transportation and Marketing of Petroleum Products, January, 1995. This relationship was used to estimate annual VOC and HAP loading rack emissions. The document states that it has within a + or 30 percent, probable error.

ANNUAL LOADING RACK EMISSIONS using an ANNUAL AVERAGE MOLE FRACTION GASOLINE SERVICE

L = 12.46 SPM/T

where L. = loading loss, lb/1000 gal

S = saturation factor, dimensionless, 1.0

P = true vapor pressure of liquid delivered, paix

M = molecular weight of vapor, lb/lb-mole

T = absolute bulk liquid temperature, *R

L = see Chart 8 = see 1.00 P = 3.2268 M = 66.47 T = 506.6

ANNUAL Gasoline Throughput, gallons per year =

ANNUAL

HAPs	· Mole	L	Emissions
Compounds	Fraction	(lb/10 ; gai)	(Ton/YEAR)
Benzene	0.0054	0.0285	1.53
Ethylbenzene	0.0005	0.0026	0.14
Hexane	0.0067	0.0459	2.46
Naphthalene	0.0000	3.14E-06	1.69E-04
Toluene	0.0076	0.0401	2.15
rimethylpentane (2,2,4)	0.0019	0.0100	0.54
Xylena-m	0.0013	0.0069	0.37
Xylene-o	0.0006	0.0032	0.17
Xylene-p	0.0010	0.0053	0.26
Gasoline (RVP-10)	0.9730	5.1330	275.41
TOTAL	<u> </u>	<u> </u>	283.0

XYLENE (mixture) 0.82 tons per year

TOTAL-HAPS ONLY

7.64

DISTILLATE FUEL OIL SERVICE

LL = 12.48 SPM/T

where Li = loading lose, lb/1000 gal

S = saturation factor, dimensionless, 1.0

P = true vapor pressure of liquid delivered, psia M = molecular weight of vapor, lb/lb-mole

T = absolute bulk liquid temperature , *R

L.= see chart below S = see 1.00 P = 0.0046

M= 129.04 T= 506.6

ANNUAL Distillate Fuel Oil Throughput, gallons per year =

462996.0 E^3 gallons

107310.0 E^3 gallone

ANNUAL

HAP*	Mole	L	Emissions
Compounds	Fraction	(lb/10 ; gal)	(TONYEAR)
Naphthalene	0.0005	7,30E-06	0.002
Toluene	0.0102	0.0001	0.034
Xylene-m	0.0115	0.0002	0.039
Xylene-o	0.0031	0.0000	0.010
Distillate Fuel Oil #2	0.9747	0.0142	3.294
TOTAL	1.0000		3.380
TOTAL-HAPS ONLY			0.086

XYLENE (mixture) 0.05 tons per year

TYPICAL STORAGE TANK EMISSIONS

Emissions are estimated using TANK82 and are for a SiNGLE storage tank, except as noted.

Storage tank emissions are comprised of: Withdrawal, roof-fitting, rim-seal, and standing losses. Gasoline Storage Tanks

Tanks 301, 304, 311, 321

	Hourly	Annual
HAPs	Emissions	Emissions
Compounds	(lb/hr)	(Ton/YEAR)
Benzene	0.0032	0.0141
Ethylbenzene	0.0009	0.0039
Hexane	0.0048	0.0210
Naphthalene	0.0000	0.0002
Toluene	0.0067	0.0293
Trimethylpentane (2,2,4)	0.0014	0.0060
Xylene-m	0.0020	0.0088
Xylene-o	0.0013	0.0059
Xylena-p	0.0019	0.0081
Gasoline (RVP-10)	0.4943	2.1648
TOTAL VOCs	0.516	2.262
TOTAL-HAPS ONLY	0.022	0.097

For the four (4) Tanks:

TOTAL VOCS	2.066	9 048
§	4,000	0.0.70
TOTAL-HAPS ONLY	0.089	0.389

Tanks Transmix and Prover

Emissions are nearly identical (per applicant's submittal) to each other so the Transmix Tank results will be used for both tanks.

	Hourly	Annual
HAPs	Emissions	Emissions
Compounds	(lb/hr)	(TonYEAR)
Benzene	0.0003	0.0011
Ethylbenzene	0.0000	0.0001
Hexane	0.0004	0.0018
Naphthalene	0.0000	0.0000
Toluene	0.0004	0.0016
Trimethylpentane (2,2,4)	0.0001	0.0005
Xylene-m	0.0001	0.0003
Xylene-o	0.0000	0.0001
Xylene-p	0.0000	0.0002
Gasoline (RVP-10)	0.0469	0.2053
TOTAL VOCs	0.0482	0.2109
TOTAL-HAPS ONLY	0.0013	0.0056

For the two (2) Tanks:

TOTAL VOCs	0.0963	0.4219
TOTAL-HAPS ONLY	0.0026	0.0112

Data for Transmix and Prover Tanks is from the applicant's submittal.

DISTILLATE FUEL OIL STORAGE TANKS

TANKS 302, 305, 306

	Hourty	Annual
HAPs	Emissions	Emissions
Compounds	(lb/hr)	(Ton/YEAR)
Naphthalene	0.0000	0.0002
Toluene	0,0009	0.0041
Xylene-m	0.0011	0.0047
Xylene-o	0,0003	0.0013
Distillate Fuel Oil #2	0.0909	0.3979
TOTAL VOCs	0.0932	0.4063
TOTAL-HAPS ONLY	0.0024	0.0103

For the three (3) Tanks:

TOTAL VOCs	0.2798	1 2248
I WINL TWO	0.2100	1.2270
TOTAL -HAPS ONLY	0.0074	0.0240
I IVIAL-HAPO URLI	0.0071	0.03101

STORAGE TANK SUMMARY

	Hourty	Annual
HAPs	Emissions	Emissions
Compounds	(lb/hr)	(TONYEAR)
Benzene	0.0133	0.0584
Ethylbenzene	0.0036	0.0157
Hexane	0.0200	0.0875
Naphthalene	0.0003	0.0013
Toluene	0.0303	0.1326
Trimethylpentane (2,2,4)	0.0057	0.0249
Xylene-m	0.0114	0.0500
Xylene-o	0.0063	0.0275
Xylene-p	0.0075	0.0330
Gasoline OR Fuel Oil	2.3433	10.2639
TOTAL VOCs	2.4417	10.6949
TOTAL-HAPS ONLY	0.0984	0.4310

Xylenes (mbture):

0.1105 Tons/yr

FUGITIVE EMISSIONS

Burley Facility

Notes and Comments: (Response to Public Comment)

- 1. The application materials did in fact account fugitive emissions occurring for 8760 hours per year.
- 2. The fugitive emissions will be estimated using the revised emission factors published in the EPA Protocol for Equipment Leak Emission Estimates, November 1995, EPA-453\R-95-017. Sinclair Oil Corp. has requested in public comment that these be used in place of the 1995 "Interim" Average emission factors used to establish emission limits in the proposed permit. Those emission factors are incorporated below. Result: There is no appreciable difference between emissions estimated with the interim and November, 1995 Protocol factors.
- 3. The number of emissions sources is provided by the applicant.

		Emission Factor	Total VOC Emissions	Assumed Hours/yr	Total VOC Emissions
SOURCE	# of Sources	(lb/hr/source)	(lb/hr)	Operation	(Tons/year)
GASOLINE (light liquid):			'		
Pump Seals	6	1.2E-03	0.007	8760	0.032
Valves	99	9.5E-05	0.009	8760	0.041
Flanges	212	1.8E-05	0,004	8760	0.017
Process Drains *1	2	0.07	0.140	8760	0.613
Oil/Water Separator	0		0.000	8760	0.000
		Lb/hr totals:	0.160	Ton/yr totals:	0,703
DISTILLATE FUEL OIL					
(heavy liquid) *2				<u> </u>	
Pump Seals	3	2.9E-02	0.086	8760	0.377
Vaives	76	5.5E-05	0.004	8760	0.018
Flanges	158	2.4E-04	0.038	8760	0.168
Process Drains *1	0	0.07	0.000	8760	0.000
Oil/Water Separator	0		0.000	8760	0.000
		Lb/hr totals:	0.128	Ton/yr totals:	0.563

Fugitive Grand Total:

0.29 lb/hr

1.27 Ton/yr

HAP Emissions = VOC Emission Rate * HAP Liquid Mass Fraction

^{*1} Emission factor for the drain is from AP-42 Table 9.1-2 Fugitive Emission Factors for Petroleum Refineries, October/1980

^{*2} Distillate fuel oil emission factors are from the August 1995 AP-42 Interim Emission Factors for Oil and Gas Production Operations

FUGITIVE HAP EMISSIONS (Gasoline Service) VOC Emis HAP Emission VOC emis HAP Emission Liquid Mass Rate Rate Rate Rate (Tons/year) 0.0132 **HAP Component** Fraction (lb/hr) (lb/hr) (Tons/year) 0.0030 0.0030 Benzene 0.0188 0.0132 0.0033 0.0145 0.0145 Ethylbenzene 0.0207 0.0033 0.0029 0.0127 0.0127 Hexane 0.0181 0.0029 Naphthalene 0.0009 0.0009 0.0013 0.0002 0.0002 Toluena 0.0972 0.0156 0.0156 0.0683 0.0683 Trimethipentane 2,2,4 0.0151 0.0024 0.0024 0.0106 0.0106 Xylene (-m) Xylene (-o) 0.0315 0.0448 0.0072 0.0072 0.0315 0.0245 0.0245 0.0349 0.0056 0.0056 0.0315 Xylene (-p) 0.0072 0.0448 0.0072 0.0315 Gasoline (RVP 10) 0.7043 0.1130 0.49490.0000 0.0000 Totals: 1.0000 0.0474 0.703 0.208 0.1604

FUGITIVE HAP EMISSIONS (Distillate Fuel Oil Service)						
HAP Component	Liquid Mass Fraction	VOC Emis Rate (lb/hr)	HAP Emission Rate (lb/hr)	VOC Emis Rate (Tons/year)	HAP Emission Rate (Tons/year)	
Benzene	0.000028	0.000004	0.000004	0.000016	0.000016	
Naphthalene	0.001700	0.000218	0.000218	0.000957	0.000957	
Toluene	0.000200	0.000026	0.000026	0.000113	0.000113	
Xylene (-m)	0.000300	0.000039	0.000039	0,000169	0.000169	
Xylene (-o)	0.000600	0.000077	0.000077	0.000338	0.000338	
Xylene (-p)	0.000000	0.000000	0.000000	0.000000	0,000000	
Distillate Fuel Oil #2	0.997172	0.128121		0.561169		
Totals	1.0000	0,1285	0.00036	0.5628	0.0016	

Emissions and Allowable Throughput Summary - Burley, Idaho Facility Based upon Letter received June 17, 1996/Greene to Green-Submittal of Revised Allowable Emissions

80URCE	ALLOWABLE EMISSIONS				Allowabie	· · · · · · · · · · · · · · · · · · ·
IDENTIFICATION	Volatile Organic Compounds		Aggregated		Throughput	Allowable Product
			Hazardous A	r Pollutants	7 .	Type
	(lb/hr)	(Tons/yr)	(lb/hr)	(Tons/yr)	(Gallons/yr)	
STORAGE TANKS						
Tank 301	0.52	2.26	0.022	0.097	86,359,000	Gasoline
Tenk 304	0.52	2.26	0.022	0.097	86,359,000	Gasoline
Tenk 311	0.52	2.26	0.022	0.097	86,359,000	Gasoline
Tank 321	0.52	2.26	0.022	0.097	86,359,000	Gasoline
	2.07	9.05	0.09	0.39	00,358,000	CAMBCRITIE
Tenk 302	0.09	0.41	0.002	0.010	4 E E E E C O E C O	Polinational Property
Tank 305	0.09	0.41	0.002	0.010	155,599,500	Distillate Fuel Oil
Tank 306	0.09	0.41	0.002	0.010	155,599,500	Distillate Fuel Oil
	0.28	1.22	0.01	0.03	155,599,500	Distillate Fuel Oil
Transmix Tank 400	0.05	0.21	0.001	0.006	38.090	Gasolina
Prover Tank	0.05	0.21	0.001	0.006 0.006	220,200	Gasoline Gasoline
	0.10	0.42	0.003	0.011	220,200	Gasonne
LOADING RACK						
Gasoline Service	84.62	283.05	1.74	7.64	107,310,000	Gasoline
Distillate Fuel Oil Service	0.77	3.38	0.02	0.09	462,996,000	Distillate Fuel Oil
	65.40	286.43	1.76	7.73	402,550,000	DISMINIO FUOI ON
FUGITIVES						
Gasoline Service	0.160	0,703	0.047	A 200		
Distillate Fuel Oil Service	0.128	0.763 0.563		9.208	N/A	
	0.289	1.265	<u>0.000</u> 0.048	<u>0.002</u> 0.209	N/A	
		1.200	U.U-70	V.208		
Total Emissions:	68.13	298.39	1.91	8.37		

N/A stands for Not Applicable

Annual storage tank emissions are derived from the EPA/API TANKS2.0 program.

Response to Comments and Questions Submitted During a Public Comment Period on Sinclair Oil Corporation (Burley) Proposed Tier II Operating Permit (OP) for the Entire Facility

COMMENTS AND RESPONSES

Comment #1:

Sinclair Oil Corporation (SOC) has identified the following administrative corrections to the proposed Permit:

Page 2 of 10, Section 1.1, Process Description, 3rd sentence should read: "Gasoline is allowed to be stored in four of these tanks..."

Page 4 of 10, Section 1.1, Process Description, 2nd sentence should read: "...where one or more loading rack arms are attached to the carrier." Note that the loading rack is a bottom loading system and not a top loading system.

DEO Response:

The permit text has been altered as noted above. The descriptions were also altered in Sections 1.2 and 1.3 of the same page to reflect this comment.

There is no difference in estimated emissions between the two loading rack systems.

Comment #2:

Fugitive Emissions: The fugitive emission calculation submitted with the Permit application was based upon Refinery Average Emission Factors applied at 8,760 hours per year. Subsequent to Permit application submittal, the protocol document has been revised. The new revision includes Marketing Terminal Average Emission Factors which are directly applicable to fugitive sources in light liquid (i.e., gasoline) service. SOC believes these factors more accurately reflect the fugitive emissions from light liquid service at this facility. Inclusion of the new factor significantly reduces the fugitive VOC and HAP emission from the facility and SOC supports the use of these factors for this application. The Division's technical analysis utilized "Interim" Emissions Factors for light liquid service which correspond closely to the Marketing Terminal Average Emission Factors.

With regard to emissions from fugitive sources in heavy liquid (i.e., fuel oil) service, neither the Interim factors nor the Marketing Terminal Average Emission Factors include corresponding factors for fuel oil service. The Division utilized "light oil" from Average Emission Factors for Oil and Gas Production Operations for the fuel oil emission factors. SOC is concerns with the use of the "Oil and Gas Production" factors for fuel oil service because these factors result in a higher emissions (lb/hr/source) than the corresponding gasoline service factors.

Fugitive emissions from gasoline service tend to be greater than fugitive emissions from fuel oil service. SOC also recognizes that more accurate factors may not yet be developed for the fuel oil service application. Although the fuel oil service factors used in the technical analysis overpredict fugitive fuel oil emission, thus providing a conservative estimate of these emissions, SOC agrees with the Division's assessment of fugitive emissions from fuel oil service.

DEQ Response:

Gasoline Service

SOC is correct in stating that the original permit application estimated fugitive volatile organic compounds (VOCs) and hazardous air pollutant (HAPs) emissions continuously—or 8760 hours per year.

.....

The 1993 EPA Protocol for Equipment Leak Emission Estimates¹ (1993 Protocol) was used to set emission limits in the permit application. The 1995 "Interim" emission factors² used to establish the proposed permit's emission limits were much smaller than those in the 1993 Protocol. This accounted for a lower level of allowable fugitive emissions in the proposed permit than originally applied for.

The "Interim" emission factors for pump seals, valves, and flanges in light liquid (gasoline) service are either identical, or nearly so, when compared to the Marketing Terminal Average Emission Factors, published in the 1995 Protocol. Fugitive emissions from gasoline service were recalculated using the 1995 Protocol emission factors (see attachment). The difference in estimated fugitive emissions was negligible. Therefore, the allowable pollutant emissions permit limits and gasoline throughput limits will remain unchanged.

Distillate Fuel Oil Service

DEQ agrees with SOC's comment that fugitive emissions from gasoline service should be greater than for distillate fuel oil service. At the present time there are no Marketing Terminal Average Emission factors for distillate fuel oil service. In the absence of actual screening values for the distillate fuel oil service emission sources, DEQ maintained that the apparently conservative emission factors used in the proposed permit's analysis provided the best option available. The final result and goal of this Tier II Operating Permit is to establish the facility as a "synthetic minor" for HAPs emissions.

Protocol for Equipment Leak Emission Estimates, EPA-453\R-93-026, June 1993, USEPA.

New Equipment Leak Emissions Factors for Petroleum Refineries, Gasoline Marketing and Oil and Gas Production Operations, February 1995, USEPA.

Protocol for Equipment Leak Emission Estimates, EPA-453\R-95-017, November 1995, USEPA.

FUGITIVE EMISSIONS

Burley Facility

Notes and Comments: (Response to Public Comment)

- 1. The application materials did in fact account fugitive emissions occurring for 8760 hours per year.
- 2. The fugitive emissions will be estimated using the revised emission factors published in the EPA Protocol for Equipment Leak Emission Estimates, November 1995, EPA-453\R-95-017. Sinclair Oil Corp. has requested in public comment that these be used in place of the 1995 "Interim" Average emission factors used to establish emission limits in the proposed permit. Those emission factors are incorporated below. Result: There is no appreciable difference between emissions estimated with the interim and November, 1995 Protocol factors.
- 3. The number of emissions sources is provided by the applicant.

	["	Emission	Total VOC	Assumed	Total VOC
		Factor	Emissions	Hours/yr	Emissions
		(lb/hr/source)	(lb/hr)	Operation	(Tons/year)
GASOLINE (light liquid):					
Pump Seals	6	1.2E-03	0.007	8760	0.032
Vaives	99	9.5E-05	0.009	8760	0.041
Flanges	212	1.8E-05	0.004	8760	0.017
Process Drains *1	2	0.07	0.140	8760	0.613
Oil/Water Separator	0		0.000	8760	0.000
		Lb/hr totals:	0.160	Ton/yr totals:	0.703
DISTILLATE FUEL OIL					
(heavy liquid) *2					
Pump Seals	3	2.9E-02	0.086	8760	0.377
Valves	76	5.5E-05	0.004	8760	0.018
Flanges	158	2.4E-04	0.038	8760	0.168
Process Drains *1	. 0	0.07	0.000	8760	0.000
Oil/Water Separator	0		0.000	8760	0.000
		Lb/hr totals:	0.128	Tonlyr totals:	0.563

The original analysis estimated emissions at 0.702 ton/yr. This is not significant.

Fugitive Grand Total:

0.29 lb/hr

1.27 Ton/yr

HAP Emissions = VOC Emission Rate * HAP Liquid Mass Fraction

^{*1} Emission factor for the drain is from AP-42 Table 9.1-2 Fugitive Emission Factors for Petroleum Refineries, October/1980

^{*2} Distillate fuel oil emission factors are from the August 1995 AP-42 Interim Emission Factors for Oil and Gas Production Operations

FROM 1995 Leaks Document: > EPA Frocol for Equipment Leak Emissis- Ecti-ates, Nr. 1995.

TABLE 2-3. MARKETING TERMINAL AVERAGE EMISSION FACTORS

Equipment type	Service	Emission factor (kg/hr/source) ^a	16m-1 K-1 331
Valves	Gas Light Liquid	1.3E-05 4.3E-05	9,58-5
Pump seals	Gas Light Liquid	6.52-05 5.42-04	1.2/= -3
Others (compressors and others) b	Gas Light Liquid	1.2E-04 1.3E-04	2.9E-#
Fittings (connectors and flanges) c	Gas Light Liquid	4.2E-05 8.0E-06	1.8E-5

^aThese factors are for total organic compound emission rates (including non-VCC's such as methane and ethane).

C"Fittings" were not identified as flanges or non-flanged connectors; therefore, the fitting emissions were estimated by averaging the estimates from the connector and the flange correlation equations.

where Ibm = Found mass = 220462 Ibm Per Eligram.

bThe "other" equipment type should be applied for any equipment type other than fittings, pumps, or valves.



JUN 17 1996

June 12, 1996

Mr. Orville D. Green, Assistant Administrator Permits and Enforcement Idaho Department of Health and Welfare Division of Environmental Quality 1410 North Hilton Boise, Idaho 83706-1255

DIV. OF ENVIRONMENTAL QUALITY PERMITS & ENFORCEMENT

Sinclair Oil Corporation (Burley) - #9509-138-2

Tier 2 Operating Permit #031-00026

Submittal of Revised Allowable Emissions

Dear Mr. Green:

On May 3, 1996, the Division of Environmental Quality (DEQ) granted Sinclair Oil Corporation (SOC) a hold on the issuance of Tier 2 Operating Permit #031-00026. SOC requested the hold in order to revise the permit's allowable emissions.

Please find attached, the revised forms and text (denoted by revision #1) identifying the requested changes to the Tier 2 Operating Permit Application. Please replace the appropriate portions of the Tier 2 Operating Permit Application initial submittal with these revisions.

These revisions reflect a decrease in the allowable gasoline grade petroleum product which may be distributed through the loading rack (EU #10). In addition, the allowable distillate fuel oil grade petroleum product which may be distributed through the loading rack increased. These changes result in a substantial decrease in the facility-wide allowable emissions. Please note that the allowable emissions from Emissions Units 1 through 10 and the allowable fugitive emissions remain unchanged with respect to the Proposed Tier 2 Operating Permit review package dated February 16, 1996.

Should you have any questions regarding the information in this application, please call me at (801) 524-2729.

Respectfully,

Samuel B. Greene P.E.

Corporate Air Quality Engineer

attachments

Kevin Brown w/o/a Mark Peterson w/o/a Klane Forsgren w/o/a David Stice w/o/a Dave Cole

Tier 2 Operating Permit Application
Burley Products Terminal
Sinclair Oil Corporation
Revision 1, June 12, 1996

Table 4.1 Maximum Potential Emissions Summary

EU ≇	Description	Maximum Potential VOC Emissions (TPY)	Maximum Potential HAP Emissions (TPY)
1	Tank 301	2.26	0.097
2	Tank 304	2.26	0.097
3	Tank 311	2.26	0.097
4	Tank 321	2.26	0.097
5	Tank 302	0.41	0.010
6	Tank 305	0.41	0.010
7	Tank 306	0.41	0.010
8	Transmix Tank	0.21	0.006
9	Prover Tank	Ö-21	0.006
10	Loading Rack - gasoline	283.2	7.73
	Loading Rack - distillate oil	3.38	0.085
	Fugitive Emissions	1.26	0.209
	TOTAL EMISSIONS	298.5	8.45

The allowable emissions from Emissions Units 1 through 10 and the allowable fugitive emissions remain unchanged with respect to Appendix A of the proposed Tier 2 Operating Permit review package dated February 13, 1996

4.2.2 Fixed Roof Tanks (EU # 5, 6 and 7):

Distillate fuel oil grade petroleum products can be stored in these tanks. Emissions from these units are a result of breathing and working losses as defined per AP-42 methodology. The maximum potential emissions from any one of these tanks occurs when distillate grade petroleum product is loaded, stored and unloaded at the defined maximum throughput. The maximum throughput for any one of these tanks is defined as the capacity of the pipeline supplying the terminal distributed to two of the three storage tanks (this assumes that one of the three storage

Tier 2 Operating Permit Application
Burley Products Terminal
Sinclair Oil Corporation
Revision 1, June 12, 1996

Table 4.2 Maximum Annual Product Throughput Limits

EU #	Description	Maximum EU Throughput (gpy)
1	Tank 301	86,359,000
2	Tank 304	86,359,000
3	Tank 311	86,359,000
4	Tank 321	86,359,000
5	Tank 302	155,599,500
6	Tank 305	155,599,500
7	Tank 306	155,599,500
8	Transmix Tank	38,080
9	Prover Tank	220,200
10	Loading Rack - gasoline	107,310,000
	Loading Rack - distillate oil	462,966,000

4.4.1 Storage Tank Monitoring (EU # 1 through 8)

The operator will record the quantity of product received in all storage tanks. This information will be compiled on an annual basis to determine annual product throughput. Periods of excess emissions will be defined as any calendar year (January 1 to December 31) in which the annual throughput of the individual storage tank exceeds the limits indicated in Table 4.2.

4.4.2 Prover (EU # 9)

The operator will compile, on an annual basis, the volume of product transferred to the prover. This information is proportional to the number of flowmeter calibration cycles during the year. Periods of excess emissions will be defined as any calendar year (January 1 to December 31) in which the annual throughput of the prover tank exceeds the limit indicated in Table 5.2.

APPENDIX: D PROPOSED PERMIT CONDITIONS

1. The facility shall be limited to a maximum annual product throughput rate as listed in Table D.1:

Table D.1: Maximum Annual Product Throughput Limits

EU #	Description	Maximum EU Throughput (gpy)
1	Tank 301	86,359,000
2	Tank 304	86,359,000
3	Tank 311	86,359,000
4	Tank 321	86,359,000
5	Tank 302	155,599,500
6	Tank 305	155,599,500
7	Tank 306	155,599,500
8	Transmix Tank	38,080
9	Prover Tank	220,200
10	Loading Rack - gasoline	107,310,000
	Loading Rack - distillate oil	462,966,000

- 2. Compliance with the permitted maximum potential emissions limit will be based upon monitoring the annual product throughput of each EU. Reporting of the annual EU product throughput will be combined with the registration of emissions and payment of fees for Tier 1 permits (re: IDAPA 16.01.01 Section 525).
- 3. A period of excess emissions is defined to be any calendar year (January 1 to December 31) in which the annual throughput of the individual EU exceeds the limit indicated in Table D.1.

COMPANY & DIVISION NAME	Sinclair Oil Corporation / Surley Products Termin	· Revision M,	June 16,1996
T ADDRESS OR P.O. BOX	425 east Hwy 81		
CITY	Burley ·		
STATE Idaho	ZIP <u>833:18</u>		
PERSON TO CONTACT	Facility Contact : Dave Cole Permitting Co	Ortact : Samuel 8 Greene	
TITLE	Terminal Manager Corp. Air Out	My Stylinear	
PHONE NUMBER	(208)678-7363 (801)	524-2729	
EXACT PLANT LOCATION	T-10. \$-38, R-23E		
GENERAL NATURE OF BUSINESS	Petroleum Products Storage and Distribution		
NUMBER OF FULL-TIME EMPLOYEES	1.5		
PROPERTY AREA (ACRES)	15.26	REASON FOR APPLICATION (1) Permit to Construct a new facility; (2) Permit to Moddy an existing source; (3) Permit to Construct a new source; (4) Change of Owner or Location; (5) Tier I Permit to Operate; (6) Tier II Permit to Operate	
DISTANCE TO NEAREST STATE BORDS	R (MILES) SC		
PRIMARY SIC	5171	SECONCARY SIC	
PLANT LOCATION COUNTY	Casia	ELEVATION (FT)	4180
' NE	12		
UTM (X) COORDINATE (KM)	277123	UTM (Y) COORDINATE (KM)	4710315
NAME OF FACILITIES List all facilities within the state that are un	LOCATION OF OTHER FACILITIES der your control, or under common control, and have	e emissions to the air. If none, so state	
Burley Products Terminal	425 east Hwy 81 Surley Idaho 8331	8 Causia County	
Some Products Terminal	712 North Curtis Bosse Idaho 53706	Ada County	
OWNER OR RESPONSIBLE OFFICIAL	Mark Peterson		
TITLE OF RESPONSIBLE OFFICIAL	Manager, Pioenne and Terminals		
Sesed on Information and belief formed after socument are true, accurate, and complete,	r reseanable inquiry, I certify the statements and ink	armation of the	
SIGNATURE OF OWNER OR RESPONSES	le official	<u> ATE</u>	-
			1.112
			

DEQ USE ONLY		
DEQ PLANT ID GODE	DEQ PROCESS CODE DEQ STACK ID CODE	
- SUILDING ID CODE	PRIMARY SCC SECONDARY SCC	
DEG SEGMENT CODE		
PART A: LOADING RACK DATA		
PROCESS CODE OR DESCRIPTION	GASOLINE LOADING Revision A, June 12,1	1996
STACK DESCRIPTION	EU # 10	
BUILDING DESCRIPTION		
DATE INSTALLED OR LAST MODIFIED	1950-	
TYPE OF LOADING Please choose from the following: (01) Overhead loading - splash fill, normal service; (02) Overhead loading - splash fill, balanced service; (03) Overhead loading - submerged fill, normal service; (04) Overhead loading - submerged fill, balanced service; (05) Bottom loading - normal service; (06) Bottom loading - balanced service	LOADING ARM VAPOR CLOSURE Please choose from the following: (01) incineration: (02) GREENWOOD; (03) SOCO: (04) CHICKSAN; (05) None - open to sir; (06) Other Dry brake coupler	5
" W^~~RIAL LOADED	GASOLINE	
ANNUAL THROUGHPUT (GAL.)	107.3E6 (maximum) A	
REID VAPOR PRESSURE (PSI)	annual average=10 (15 maximum)	
MAXIMUM MATERIAL TEMPERATURE (DEG. F)	S9 (annual average musimum)	
NVERAGE MATERIAL TEMPERATURE (DEG. F)	47 (daily average)	

^{*} See section 5.1.1 of Tier 1 operating permit Application

0EC.FE8 25		HOWRSIGAY	**	Revision	Δ , June	12,1996
7 7 3		WEEKSYEAR	331		•	
	-		<u></u>			
COLLUTION CONTROL COMPMENT			\$ECONON	#**	v	
**AAAMETER TYPE	NA.	· 1				
TIPE CODE IFROM APP. A)		······································				
MANUFACTURER		1		······································	-	
MODEL MUMBER					-	
PRESSURE DROP (INL OF WATER)					····	
WET SCHUBBER FLOW (GPV)			1	_		
MGPOUSE ARCQUIN RATIO (FPM)	<u>L</u> J		<u> </u>			
YEKTRATION AND BUILDING CAREA	PAIA	STACK DA	LA			
EHCLOSEDT (YM)	<u> </u>	GROUND ELEVATION (FT)	<u></u>	144	
HOOG TYPE (FROM APP. 8)		UTM X COORDWATE (KM	3		<u>.a</u>	
MINIMUM FLOW (ACFM)		UTM Y COORDWATE (GA	1	4710	בנו	
PERCENT CAPTURE EFFICIENCY		STACK TYPE (SEE MOTE	SELOW		3	
MILLIANG HEIGHT (FT)		STACK EXIT HEIGHT FRO	M CADUNO LEVEL (FT)			
NULL OWG LENGTH (FT)		STACK EXIT DAMETER (m .		23	
BUILDING WIDTH (FT)		STACK BUT GAS FLOWR	ATE (ACTVI)		٠	
		STACK EXIT TEMPERATE	me (DEG. P)		47 WERGE	
	 .			· ···· - ····		
ACT CAS HUMBER	EMESSON FACTOR FACE MOTE	PERCENT CONTROL EFFICIENCY	ESTMATED OR MEASURED EMISSIONS	ALCOMALE EMESS		
` *•	BELOWS		(1.05/47)			
શ્લ						
Page 70						
SCT						
CO CO						
HOW .			<u></u>		<u> </u>	
voc	SME45 CECAL			64.7 283.2		
LEAG						
<u></u>				0.35 1.53		
1441				056 2.46		
1330-70-7				a.19 0.82		💒
(34.4)				0.49 2.15		•
100-11-4		a		0.032, 0.14		•
11-20-3				A.6E-5 2.0E-		
34441		4	1.	0.14 0.62		

STACK TYPE - 01) DOWNMARD; (2) VERTICAL (LINCOVERED); (3)) VERTICAL (COVERED); (4) HORGONTAL; (5) FUGITIVE EMISSION FACTOR - IN LIBEAUNTS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

DEQ USE ONLY			, ·
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEG STACK ID CODE	
BUILDING ID CODE	PRIMARY SCC	SECONDARY SCC	
DEG SEGMENT CODE			
PART A: LOADING RACK DATA		- 11116 · 1111 · 11 · 11 · 11 · 11 · 11	
PROCESS CODE OR DESCRIPTION	DISTILLATE FUEL OIL LOADING	Revision A, June	12,1996
STACK DESCRIPTION	EU #10		
BUILDING DESCRIPTION			
DATE INSTALLED OR LAST MODIFIED	1950*		
TYPE OF LOADING Please choose from the following: (01) Overhead loading - splash fill, normal service; (02) Overhead loading - splash fill, balanced serviced; (03) Overhead loading - submerged fill, normal service; (04) Overhead loading - submerged fill, balanced service; (05) Sottom loading - normal service; (06) Sottom loading - balanced service	5,6	LOADING ARM VAPOR CLOSURE Please choose from the following: (01) Incineration; (02) GREENWOOD; (03) SOCO; (04) CHICKSAN; (05) None - open to air; (05) Other Dry brake coupler	5
MITTRIAL LOADED	DISTILLATE FUEL OIL		
ANNUAL THROUGHPUT (GAL.)	463.0 E 6 maximum A		
REID VAPOR PRESSURE (PSI)	3022 (annual average) (.05 maxim	um)	
MAXIMUM MATERIAL TEMPERATURE (DEG. F)	59 (annual average maximum)		
AVERAGE MATERIAL TEMPERATURE (DEG. P)	47 (daily average)		

^{*} See section 5,1,1 of Tier 1 Operating Permit Application

PERCENT FUEL	CONSUMPTION PER QUARTER		OPERATING SCHED	ne K	cevision.	12, June 12
060-FE#	<u></u>		HOURS/OAY	24		•
HAR-HAT	3		DAYSMEEK			
7 °G	73		WEEKSMEAR	32		
•	*	-				
	POLILITION CONTROL FOLIPMENT					
PARAMETER		PRILLARY			GARY.	
TYPE	•			444		
TYPE CODE (FA	iom app. Al	<u></u>				
HAMIFACTURE	决			<u></u>		
MODEL NUMBE	*					
PRESSURE ORG	OF (INL OF WATER)	<u></u>		<u></u>		
WET SCHUBBE	R FLOW (GPM)					
EACHOUSE AIR	CLOTH RATIO (FFM)			t		
	YENTKATION AND BUILDINGHAREA.	GATA	RTACK	LDATA		
EHCLOSED? (YA	NA		GROUND ELEVATION	(FT)		4146
HOOD TYPE (FR	OH APP. 81		UTM X COOMONATE	(ACI-0)		112
MONING FLOW	(ACFM)		UTM T COORDINATE	(MCA4)	(A)	C15
PERCENT CAPT	URE EFFCIENCY		STACK TYPE (SEE M	OTE BELOW		3
BUILDING HEIGH	rr (FT)		STACK BUT HEIGHT	FROM GROUND LEVEL (FT)		
SUALDING LENGT	TH (TT)		STACK EXIT SIAMETI	E# (FT)		43
SUILDING WIDTH	1 (777)		STACK EXT GAS FLO	whate McFH1		131
			STACK EXIT TEMPER	lature (decl. P)	<u></u>	17 CAMPILLE
	ME COLLUTANT CHESTONS					
POLLUTANT	CAS MIMBER	EMESSION FACTOR	PERCENT	estrated on Wearmed	atomete eme	20K\$
	•	SEE HOTE	EFFICIENCY	(LESANT)	(LESHIN) (TOKS)	M) REFERENCE
M	•		-			
P44-10	•					
SG2						
¢o .						
MOs						
voc					O.77 B.33	
LEAG		1,445-05 10			(V-7-T) (2+3)	
	(
X/Amus	<u> </u>		<u> </u>		0.011 0.04	
Tekan-	198-48-3	<u></u>	4		0.008 0.03	
	<u>**-20-3</u>	L	<u> </u>		3.9E-4 1.7E-	2 444 (1)

#OTES:

STACK TYPE - 01) DOWNMARD; 03) VERTICAL (WHODIVERED); 03) VERTICAL (DOVERED); 04) HORIZONTAL; 03) FACTIVE EMISSION FACTOR - 01 LESANNTS. PLEASE USE SAME HOURLY UNITS GAVEN IN FUEL DATA SECTION.

Tier 1 Operating Permit Application Burley Products Terminal Sinctair Oil Corporation May 10, 1996 Revison 1

Potential Emissions - Loading Rack

Formula:

Loading Loading (fb/1000 gat) = (12.46)(8)(P)(M)/T

Where

S = seturation factor

P = True Vapor Pressure (pes)
M = Molecular Weight of Vapor
T = Liquid Temperature (deg. R)

Loading rack emissions - gesoline

Darly Loadout	7000	960
Annual Throughput	107310	м дру
w	68.481	
Pvap	3.23	DOM
Saturation Factor	1	
Temperature	507	deg. 🕏
Erranoism Factor	5.2773	ib/M gai
Total WW america rate	28315	TOV

Г	Component	Vapor Mass	Елимоп	HAP Emmenon
		Fraction	Rate (TPY)	Rate (TPY)
	Benzene	0.0054	1,5250	1.5290
2	Hacera	0.0097	2.4634	2.4834
3	Xylana-c	0.0005	0.1699	0.1699
4	Xylene-m	0.0013	0.3661	0.3661
5	Xylene-p	0.001	0.2832	0,2832
8	Toluene	0.0078	2.1520	2.1520
7	Ethythanzene	0.0005	0.1418	0.1416
8	Naprithalene	5.96E-07	0.0002	070005
9	Trimethylpontane (2,2,4)	0.0022	3.8229	0.6229
10	Gascline(RVP10)	0.9727	275.4222	
	TOTAL	1	283.1625	7.7302

Loading rack emissions - fuel oil

Daily Loadout	30200	820
Annual Throughput	462966	M gpy
MW	129.037	
SASD	0.0046	poin.
Seturation Factor	1	
Temperature	907	deg. A
Emanon Factor	0.0146	ib/M gal
Total WW amening cate	2.20	TOV

	Component	Vapor Mese	Emeron	HAP Emilianon
		Fraction	Rela (YPY)	Here (TDV)
1	Senzene	3.000000	0.000000	3,000,000
2	Xylene-o	0.003100	0.010468	3,010466
3	Xyiana-m	3.011600	3.036633	2,036633
4	Xysene-c		3.000000	3,000000
5	Toluene	0.010200	3.034447	0.034443
ð	Nechthelene	0.000500	0.001666	3,001,686
7	Fuel on #2	0.974700	3.291336	
	TOTAL.	1.000000	3.376768	3,005432



April 29, 1996

Mr. Brian R. Monson, Bureau Chief Operating Permits Bureau Idaho Department of Health and Welfare Division of Environmental Quality 1410 North Hilton Boise, Idaho 83706-1255

Re: Sinclair Oil Corporation (Burley) - #9509-138-2
Request for Hold: Tier 2 Operating Permit #031-00026

Dear Mr. Monson:

Per our telephone conversation on April 25, 1996, Sinclair Oil Corporation (SOC) is requesting that further work on the Tier 2 Operating Permit for our Burley facility be put on hold. This request will allow SOC to evaluate the requested emissions limit in the permit application. SOC will either revise the requested emissions limit or instruct the Division to proceed with issuance of the Tier 2 Operating Permit as currently drafted.

Please call me at (801) 524-2729 if you would like to discuss this information.

Respectfully,

Samuel B. Greene P.E.

Corporate Air Quality Engineer

cc: K. Forsgren

M. Peterson

D. Stice



RECEIVED

MAR 2 1 1996

March 20, 1996

DIV. OF ENVIRONMENTAL QUALITY
PERMITS & ENFORCEMENT

Mr. Brian R. Monson, Bureau Chief Operating Permits Bureau Idaho Department of Health and Welfare Division of Environmental Quality 1410 North Hilton Boise, Idaho 83706-1255

Re: Sinclair Oil Corporation (Burley) - #9509-138-2
Approval of Proposed Tier 2 Operating Permit #031-00026

Dear Mr. Monson:

Sinclair Oil Corporation (SOC) has reviewed the Proposed Tier 2 Operating Permit (Permit) for our Burley facility, which is currently undergoing a public comment period. SOC feels that the proposed Permit accurately reflects the requested operating conditions and limitations presented in the permit application. SOC has identified items in the Permit that may require revision or clarification in order for the Permit and corresponding technical analysis to be technically accurate. These items are included as an attachment to this letter.

Please call me at (801) 524-2729 if you would like to discuss this information.

Respectfully,

Samuel B. Greene P.E.

Corporate Air Quality Engineer

attachments

cc: K. Brown

D. Cole

K. Forsgren

M. Peterson

D. Stice

Attachment A: Comments on Proposed Permit and Technical Analysis

Permit Text

SOC has identified the following administrative corrections to the proposed Permit:

Page 2 of 10, Section 1.1, <u>Process Description</u>, 3rd sentence should read: "Gasoline is allowed to be stored in four of these tanks..."

Page 4 of 10, Section 1.1, <u>Process Description</u>, 2nd sentence should read: "... where one or more loading rack arms are attached to the carrier." Note that the loading rack is a bottom loading system and not a top loading system.

Fugitive Emissions

The fugitive emission calculation submitted with the Permit application was based upon Refinery Average Emission Factors' applied at 8,760 hours per year. Subsequent to Permit application submittal, the protocol document has been revised. The new revision includes Marketing Terminal Average Emission Factors² which are directly applicable to fugitive sources in light liquid (ie. gasoline) service. SOC believes these factors more accurately reflect the fugitive emissions from light liquid service at this facility. Inclusion of the new factors significantly reduces the fugitive VOC and HAP emissions from the facility and SOC supports the use of these factors for this application. The Division's technical analysis utilized "Interim" Emissions Factors³ for light liquid service which correspond closely to the Marketing Terminal Average Emission Factors.

Protocol for Equipment Leak Emissions Estimates, EPA-453/R-93-026 June 1993, USEPA Emission Standards Division.

Protocol for Equipment Leak Emissions Estimates, EPA-453/R-95-017, November 1995, USEPA Emission Standards Division.

New Equipment Leak Emissions Factors for Petroleum Refineries, Gasoline Marketing and Oil and Gas Production Operations, February 1995, USEPA.

Sinclair Oil Corporation (Burley) - #9509-138-2 Proposed Tier 2 Operating Permit #031-00026 March 20, 1996

With regard to emissions from fugitive sources in heavy liquid (ie. fuel oil) service, neither the Interim factors nor the Marketing Terminal Average Emission Factors include corresponding factors for fuel oil service. The Division utilized "light oil" from Average Emission Factors for Oil and Gas Production Operations for the fuel oil emission factors. SOC is concerned with the use of the "Oil and Gas Production" factors for fuel oil service because these factors result in a higher emissions (lb/hr/source) than the corresponding gasoline service factors.

Fugitive emissions from gasoline service tend to be greater than fugitive emissions from fuel oil service. SOC also recognizes that more accurate factors may not yet be developed for the fuel oil service application. Although the fuel oil service factors used in the technical analysis overpredict fugitive fuel oil emissions, thus providing a conservative estimate of these emissions, SOC agrees with the Division's assessment of fugitive emissions from fuel oil service.

New Equipment Leak Emissions Factors for Oil and Gas Production Operations, August 1995, USEPA.

February 16, 1996

MEMORANDUM

TO:

Brian R. Monson, Chief Operating Permits Bureau/

Permits and Enforcement

FROM:

Darrin A. Mehr, Air Quality Engineer

Operating Permits Bureau

Wade C. Woolery, Air Quality Engineen

Technical Services Bureau

THROUGH:

Susan J. Richards, Air Quality Permits Manager ()

SUBJECT:

031-00026

Technical Analysis for Proposed Tier II Operating Permit (#CC1 00112)

Sinclair Oil Corporation (Burley)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 of the Rules for the Control of Air Pollution in Idaho (Rules) for issuing Operating Permits.

FACILITY DESCRIPTION

Sinclair Oil Corporation's (Sinclair) Burley, Idaho, facility distributes petroleum products received through the Chevron supply pipeline originating in Salt Lake City, Utah. Petroleum products consisting of various grades of gasoline and distillate fuel oil are temporarily stored in tanks prior to transfer to mobile carrier tanks for transport and delivery off-site.

PROJECT DESCRIPTION

This project is for the development of an Operating Permit that will create state and federally enforceable limitations on the facility's potential to emit hazardous air pollutants (HAPs). This permit would make the Burley facility a synthetic minor for HAP emissions, which allows the facility to be recognized as an "area source" for HAPs. Bulk gasoline distributors that are recognized as area sources of HAPs avoid the stringent control technology installation requirements of the Bulk Gasoline Distribution MACT standards.

The Operating Permit will address the following existing point and fugitive emission sources:

Gasoline Storage Tanks

The following tanks are used to store gasoline grade petroleum product. Less volatile distillate fuel oil may be stored in these tanks, which results in lesser emissions in comparison to storage of gasoline, and thus, does not increase the facility's potential to emit volatile organic compounds (VOCs) or HAPs.

TANK IDENTIFICATION #	STORAGE CAPACITY (gallons)
301	838,437
304	838,437
311	838,437
321	838,437

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Distillate Fuel Oil Storage Tanks

The following tanks are used to store distillate fuel oil grade petroleum products:

TANK IDENTIFICATION #	STORAGE CAPACITY (gallons)
302	825,024
305	825,024
306	825,024

The following two tanks can be considered as "process" tanks. The Prover Tank is used to verify the quantities of petroleum product being transferred to carrier tanks for off-site transport and delivery. The "Trans-Mix" Tank is used to store waste petroleum products (off specification fuels, residual product from other tanks, etc.).

TANK IDENTIFICATION #	STORAGE CAPACITY (gallons)
Prover, #300	734
Trans-Mix	3,808

The facility is equipped with a double bay loading rack. The loading rack system is a submerged pipe design where one or more loading arms of the loading rack system is/are placed in the access hatches in the top of the carrier tank positioned in either loading bay. The submerged fill design reduces loading emissions by decreasing turbulence in the liquid during the transfer process. No additional emissions control equipment is employed.

DOUBLE BAY LOADING RACK	MAXIMUM DAILY THROUGHPUT (gallons/day)
Gasoline Service	709,800
Distillate Fuel Oil Service	852,600

The following equipment is identified as fugitive emissions sources for VOCs and HAPs:

SOURCE	NUMBER OF SOURCES IDENTIFIED
Gasoline Service Pump Seals	6
Valves	99 -
Flanges	212
Process Drains	2
Oil/Water Separators	. 0.00
Distillate Fuel Oil Service Pump Seals	3
Valves	76
Flanges	158
Process Drains	0.00
Oil/Water Separators	0.00

Specific details about the process description can be found in the application materials provided by the Sinclair Oil Corporation.

Sinclair Burley - TECH MEMO February 16, 1996 Page 3

SUMMARY OF EVENTS

On September 12, 1995, the Division of Environmental Quality (DEQ) received an application for a Tier II Operating Permit. This application was declared administratively complete on October 12, 1995. Additional information was received on November 29, 1995, and on January 10, 1996.

The required public comment period is scheduled to start on or around February 23, 1996 and will end on or around March 23, 1996. If the public comment period is scheduled to end on March 23rd (a Saturday), public comment will be accepted until Monday, March 25, 1996.

DISCUSSION

1. Emission Estimates

Emission estimates were originally provided by Sinclair in the September 12, 1995 submittal. Additional supporting calculations and documentation were included in the November 29, 1995, and January 10, 1996, submittals.

The intent of this Tier II permit application is to establish enforceable emission limits for HAPs below the 10/25 ton per year (T/yr) thresholds for single/aggregated HAPs. The facility would be a major source regardless, as the facility's actual annual VOC emissions exceed the 100 T/yr threshold.

Gasoline Physical Properties Assumptions

There were a number of important Sinclair assumptions that DEQ had to accept in order to use Sinclair's emission estimate methodology. Gasoline service emissions constitute the vast majority of the facility's VOC and HAP emissions. The methodology employed was used to determine permit allowable VOC and HAP emissions. The following three points are the most critical to the permitting analysis (see Attachment A to review a copy of DEQ's emission estimates):

- Gasoline with a Reid Vapor Pressure of 10 pounds per square inch absolute (psia) is representative of an annual average Reid Vapor Pressure (RVP) for gasoline.
- Various grades of gasoline (winter blend unleaded regular versus summer blend unleaded premium, etc.) have different individual HAP compositions. The HAP compositions will also vary from refinery to refinery.
- 3. The HAP emissions associated with the RVP 10 psia case are the worst case emissions with regard to potential to emit.

Gasoline RVP is increased during colder months to allow for easier, more efficient, internal combustion engine starting, warmup, and operation. In warmer summer months, the RVP is decreased to reduce problems with vapor lock during engine operation. Lowering the RVP property in gasoline reduces VOC emissions from the volatile gasoline product. The summer months (May I through September 15) are identified as the "ozone season". Fuel volatility—specifically gasoline RVP—is regulated in all states within the U.S. during these months by 40 CFR Part 80. More stringent requirements may be contained in State Implementation Plans for states which have ozone nonattainment areas. VOC emissions are regulated in these areas to control the formation of ozone pollution. Idaho has no areas legally recognized as nonattainment for ozone.

The applicable requirement for the distributors of gasoline fuel for use in spark ignition engines is set by the latest standard available from the American Society of Testing and Materials (ASTM). The most recent specification is ASTM D4814-95a, which sets the maximum allowable RVP by month throughout the calendar year. This requirement is regulated by Section 37-2506, Idaho Code. The resulting average annual RVP (best case) is approximately 10.9 psia (see Attachment 3 to review the ASTM volatility schedule and the average annual RVP estimation). The worst case allowable RVP is approximately 12.6 psia.

Sinclair Burley - TECH MEMO February 16, 1996 Page 4

All of the points listed above were considered in the development of a Tier II Operating Permit that would be flexible enough to allow Sinclair to continue daily operations without placing difficult operating requirements in the permit. Without specific information on the actual "worst case" gasoline product's chemical composition, the assumption that the application materials presented a reasonable prediction of the chemical composition was used.

The applicant has stated that there is no truly accurate way for Sinclair to predict the exact HAP concentrations in the gasoline received by the terminal through the supply pipeline. This is because the HAP concentrations vary with differing RVP specifications, as well as with the various refineries producing the gasoline product. At DEQ's request, Sinclair provided a copy of the study used for comparison with the gasoline composition presented in the application (distillate fuel oil HAP composition was based on data from actual analyses).

The Radian study contained four types of gasoline that appeared applicable to this project:

- Winter blend premium;
- Winter blend regular;
- Summer blend premium;
- Summer blend regular.

See Attachment C to review a copy of the comparison of the HAP compositions between the various blends of gasoline and the Sinclair submittal received by DEQ on November 29, 1995. Additional gasoline blend data from other sources is also included. The conclusion drawn from this information is that the study gasolines' liquid state HAP compositions are quite similar to those presented as the application's reference gasoline.

The submitted report, however, does not contain specific information on the RVP of the samples. The allowable range for RVP in gasoline distributed within Idaho is between 9.0 and 15.0 psia. The emission estimates presented in the application are for RVP 10 gasoline throughout the calendar year. Because the goal of this Tier II Operating Permit is to establish synthetic minor HAP emission limits for the facility, the overriding concern should be that HAP emissions are adequately represented, and thus, limited by operating requirements related to the parameters affecting HAP emissions.

The best way to identify the potential emissions of HAPs and VOCs would be to have the detailed composition analysis of gasoline products at or near each of the individual RVP limits. The analysis that was employed to establish the allowable emissions is described below.

Loading Rack System

EPA AP-42 Section 5.2 - Transportation and Marketing of Petroleum Liquids, January, 1995, emission factor methodology was used to estimate VOC emissions for the gasoline loading rack. There is a + or - 30 percent probable error associated with this emission factor. The computer software program TANKS, Version 2.0 (TANKS2), September, 1993, developed by the American Petroleum Institute and EPA, was used to estimate emissions resulting from the loading, storage, and unloading of the petroleum products. TANKS2 provided the vapor fraction of HAPs present at the climatic conditions for Burley, Idaho, based on chemical composition and physical property data. This information was used to estimate the individual HAP, aggregated HAP, and VOC emissions for the loading rack system. Loading rack operation was assumed to occur for 8760 hours per year.

A comparison between HAP emissions resulting from the following cases was performed using individual months over an entire calendar year:

- A constant RVP of 10 psia throughout the year (as utilized in the application).
- A monthly variation in RVP that followed the "best case" or lower allowable RVP according to the applicable standard (ASTM D4814-95a).

AB2588 Emissions Estimation Techniques for Petroleum Refineries and Bulk Terminals, July 1989. Radian Corporation.

- A constant RVP of 11 psia throughout the year.
- 4. A constant RVP of 13 psia throughout the year.

The goal of this comparison was to identify which case should be used to determine the allowable aggregated and individual HAP emissions for the Tier II Operating Permit. This analysis was performed for Sinclair's Boise, Idaho, facility, and it assumes that the HAP concentrations present in the liquid state are identical for each of the four cases. Please refer to Attachment D of the Boise facility's Technical Memorandum for Tier II OP #001-00112, dated February 13, 1996.

Because the loading rack emissions dominate the facility's total emissions, it was the only emission source analyzed. An important topic to note is that the use of individual month HAP and VOC emissions data predicts a greater amount of annual emissions when compared to the annual method where a single annual average mole fraction for each HAP is used to determine a loading loss factor. The monthly method may be subject to additional rounding error that increased the amount of estimated emissions. This analysis assumes the HAP concentrations present in the liquid state for each of the four cases (see Attachment E of the Technical Analysis for the Sinclair Boise Operations Tier II Operating Permit to review the spreadsheet and TANKS2 results). Therefore, the values for Case 1 will not match the proposed allowable emission limits in the Tier II Operating Permit.

It would seem logical that the greater amount of HAPs would be emitted from a more volatile gasoline since VOC emissions increase as the RVP increases. A summary that includes the two individual HAPs emitted in the greatest amounts, aggregated HAPs, and VOC emissions follows. All other HAPs are predicted to be emitted in lesser quantities, including aggregated meta, ortho, and para kylene isomers (listed in Title III of the Clean Air Act Amendments as Kylenes (isomers and mixtures, CAS #1330207)).

The following table represents the results from comparative analysis of the four (4) different RVP-based calculations, which are outlined above, utilizing data from the Sinclair Boise Operations.

BO:	ISE	FAC	ILITY

CASE	VOC Emissions (Ton/yr)	Aggregated EAPS Emissions (Ton/yr)	Single HAP Hexane Emissions (Ton/yr)	Single HAP Toluene Emissions (Ton/yr)
Constant RVP = 10 psia	675.11	19.35	6.09	4.45
Variable RVP = ASTM D4814-95a	712.17	19.24	6.02	4.50
Constant RVP = 11 psia	746.30	19.23	6.05	4.46
Constant RVP = 13 psia	858.53	18.49	5.83	4.24

DEQ's analysis results agree with the information provided by Sinclair in their January 10, 1996, submittal. The HAP emissions for a higher RVP gasoline actually are less than for a lower RVP gasoline due to a smaller proportion of HAPs present in the vapor phase of the more volatile, higher RVP cases.

This analysis also provided the justification to not include a Tier II compliance monitoring requirement for Sinclair to monitor the RVP property of the gasoline received and distributed by the facility. This monitoring requirement would have been included in the permit to document that the RVP of the gasoline did not exceed the 10 psia annual average used to establish the synthetic minor emission limits and the applicable standard according to Section 37-2506, Idaho Code, which establishes the upper RVP limitation by month throughout the entire calendar year.

In the absence of RVP monitoring, the only monitoring and recordkeeping required for Sinclair to establish compliance with the proposed emission limits and throughputs is the tracking of gasoline and distillate fuel oil types and the amounts. The requirement will apply to all storage tanks except for the "transmix" tank which handles residual tank product and waste product, such as oil/water mixtures, etc., and will apply to the double bay loading rack system.

The Burley facility's allowable emissions were estimated based on the conclusions drawn for the Boise facility's gasoline RVP analysis.

The constant RVP 10 results for the Burley facility are listed in the following table, and are incoporated as loading rach allowable emissions in the Tier II OP.

BURLEY FACILITY

CASE	VOC Emissions (Ton/yr)	Aggregated HAFS Emissions (Ton/yr)	Single HAP Hexane Emissions (Ton/yr)	Single HAP Toluene Emissions (Ton/yr)
Constant RVP = 10 psia	685.65	18.45	5.95	5.19

Petroleum Product Storage Tanks

The TANKS2 software provided the annual individual HAP, aggregated HAP, and VOC emissions for each of the storage tanks. The specification entered into the program were based on the information provided in the application materials. The results are compiled in Attachment A.

Fugitives

New "interim" AP-42 emission factors. August, 1995, for distillate fuel oil, and February 1996, for gasoline (light liquid) approvable by EPA for use in estimating emissions for VOCs (see Attachment E). The interim fugitive emission factors are available from EPA on the EPA TTN Bulletin Board system. The emission factor for the process drain was taken from AP-42 Table 9.1-2, 10/1980. No oil/water separators were addressed in the application, and therefore, emissions from such a source are not accounted for in the allowable emissions.

The EPA interim emission factors were used because they are the most current emission factors available for pump seals, valves, and flanges. The application's potential to emit/allowable emissions estimates for the fugitive sources appeared to incorporate a 2000 hour per year assumption when backcalculated from emissions and emission factor data. Because the loading rack and storage tank operations were not restricted below 8760 hours per year, the fugitive emissions should reflect the same assumption, unless additional information substantiating a lesser number is received.

The use of EPA's interim emission factors and an increase of approximately 438% (8760 versus 2000 hours per year) resulted in a significant reduction in estimated fugitive VOC and HAP emissions. A 438% increase in fugitive emissions would place this facility's potential to emit aggregated HAPs at greater than 25 tons per year from fugitive emission sources alone.

Emission Estimates Conclusions

The final result of all of the analysis performed is that a level confidence is established due to a potential to emit value that in fact rounds up to 25 tons per year with two significant figures. Allowable throughputs remained as requested in the application, and should allow Sinclair a comfortable degree operational flexibility and expansion above current actual operations. Additional information is included in the attached appendices and the appendices for the Technical Analysis Memorandum for the Tier II Operating Permit for the Sinclair Operations in Boise.

A review of past DEQ permitting, reveals that this analysis is consistent with $\{$ that performed for Permit to Construct on other gasoline distribution facilities.

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Facility allowable annual emissions will be:

POLLUTANT	ALLOWABLE EMISSION (Tons/yr)
Volatile Organic Compounds (VOCs)	693.33
Aggregated Hazardous Air Pollutants (HAPs)	19.09
Individual HAPs: Benzene	3.76
Ethylbenzene	0.37
Hexane	6.04
Naphthalene	0.0046
Toluene	5.41
Trimethylpentané 2,2,4 (Iso-Octane)	1.34
Xylenes (mixture of isomers)	2.21

2. Modeling

No modeling was performed to assess the ambient air quality impacts of this facility.

Area Classification 3.

Sinclair's Burley facility is located in Cassia County, which is designated as either in attainment or unclassifiable for all criteria air pollutants.

The facility is located AQCR 64, Zone 11.

4. Facility Classification

The facility is not a designated facility as defined by IDAPA 16.01.01.006.25 of the Rules. (Petroleum storage capacity of the facility is approximately 5.834 million gallons. Designated facility threshold is 12.6 million gallons storage capacity.)

The facility is classified as an Al source due to permitted VOC emission limits in excess of 100 T/yr. Actual annual VCC emissions also exceed 100 T/yr.

5. Regulatory Review

This operating permit is subject to the following regulatory requirements:

a. b. c. e.	IDAPA 16.01.01.006 6 " IDAPA 16.01.01.401 IDAPA 16.01.01.403 IDAPA 16.01.01.404.01(c) IDAPA 16.01.01.404.01(c) IDAPA 16.01.01.404.04	Definitions Tier II Operating Permit Permit Requirements for Tier II Sources Opportunity for Public Comment Consideration of Comments and Final Action Authority to Revise or Renew Operating Permits
g. h. <u>i</u> .	IDAPA 16.01.01.406 IDAPA 16.01.01.470 IDAPA 16.01.01.650	Cbligation to Comply Permit Application Fees for Tier II Permits General Rules for the Control of Fugitive Dust
j.	IDAPA 16.01.01.729	Sulfur Content Limit for Distillate Fuel
k.	Section 37-2506, Idaho Code	Quality Standards for Motor Gasoline and Distillate Fuel Oil-Specifications Set By American Society of Testing and Materials
l.	40 CER Part 90.27	Controls and Prohibition on Gasoline Volatility

Sinclair Burley - TECH MEMO February 16, 1996 Page 8

FEES

Fees apply to this facility in accordance with IDAPA 16.01.470 of the <u>Rules</u>. The facility is subject to permit application fees for Tier II permits in the amount of five hundred dollars (\$500.00). Sinclair has already submitted this payment to DEQ with the application.

Fees in accordance with IDAPA 16.01.01.525 of the Rules for major facilities that meet the potential to emit requirements of IDAPA 16.01.01 .008.14 of the Rules apply to this facility. The amount which Sinclair will have to pay will not be determined until final issuance of the Tier II Operating Permit. The issued Tier II Operating Permit will establish the allowable VOC emissions, and thereby, the amount of registration fees for the facility.

RECOMMENDATIONS

Based on the review of the Tier II Operating Permit application materials and of applicable State of Idaho and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Sinclair Oil Corporation, in Burley, Idaho, be issued a Tier II Operating Permit for the sources that exist at the facility. An opportunity for public comment on the air quality aspects of the proposed permit shall be provided as required by IDAPA 16.01.01.404.01 of the Rules. Staff also recommends that the company be notified of the pollutant registration and registration fee requirements pursuant to IDAPA 16.01.01.525 of the Rules in writing.

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cc: R. Lupton, SCIRO Source File

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ATTACHMENT A

DEQ Spreadsheet on Facility Emissions (RVP-10)

Title V Engineer:

DM

Company Name: Location: Sinclair Oil Corp. Burley, Idaho January 4, 1996

Date Created: Today's Date:

01/31/96

BURGE TOATIO FACILITY

Calculation of Loading Rack Emissions

ASSUMPTIONS

TANKS2.0 provides the monthly average true vapor pressure of the gasoline product AND the molar fraction of HAP constituents
in the vapor phase of the gasoline product.

- 2. Trimethylpentane 2.2.4 is also known as Iso-octane.
- 3. Discussions with EPA Region X and the resulting discussions between EPA Region X and Research Triangle Park reveal that gasoline emissions of the three Xylune isomers should be appregated under a heading of Xylune (mixtures).
- 4. A comparison between the single "annual" and individual monthly runs of emissions from TANKS2 0 to derive vapor phase HAP and VOC percental revealed that the rounding of values due to significant figures predicts greater emissions for the detailed monthly run.
- 5. The most vital assumption made with this analysis is that it assumes an identical chemical composition throughout the year. The most accurate method for estimating all emissions would be to have samples of gasoline chemical composition for EACH of the different Reid Vapor Pressure (RVP) categories. RVP is determined by chemical composition physical properties. Therefore, the acceptance of a single gasoline chemical composition is an important assumption for DEQ to accept. The applicant has further stated that this information would be difficult, if not impossible, to deliver because they may receive gasoline product from refineries other than their own corporation's.

ANNUAL AVERAGE VAPOR PHASE HAP FRACTION METHOD:

Notes and concerns:

- EPA has recently made available revised interim emission factors to estimate fugitive emissions from Marketing terminals. The document is titled New Equipment Leak Emission Factors for Petroleum Refineries, Gasoline Marketing, and Oil & Gas Production Operations, February 1995. These emission factors are presented both for the screening method (where a known concentration of VOCs is emitted) and the "average" emission factor method, which requires no monitoring data). The "average" emission factor method is to be used just us in the applicant's enhantal. These 1995 emission factors will replace the applicant's emission estimates that employed EPA AP-42 emission factors published in 1980.
- EPA AP-42 Section 5.2 Transportation and Marketing of Petroleum Products, January, 1995. This relationship was used to estimate
 annual VOC and HAP loading rack emissions. The document states that it has within a + or 30 percent probable error.

ATTACHMENT B

ASTMD 4814-95a Standard Specification and Average Annual Allowable RVP Requirement

ABLE 4 Schedule of Seasonal and Geographical Volumby Classes.

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199 - AMERICAN SIZIETY FOR TESTING AND MATERIALS:

ASTAN D 4814-952 Stocked Spec. For Automotive Goesline
SCACINEL VOLATILITY CLASSES.

IDAHO (South 46° Lottude)

9.0 (psi) A FJE = 15 pm TUL 77 =/D 17135% 3 -A 9.0 -10.0 RUG ==3 SEP. 1-15 A 9.0 1 11,5 3.500 MARZ D/A 135/9.00 SEP 16-30 A/B 9.0/0 D= 13.5 A-92 10/11.5 **=** 15.0 CT 3/c 5,0 1 MAY 9,0 NOU 11.57/13.5 UD. JUN D/E 13.51 KT. ŒC.

BEST CHIS ALLOWAGE HELDE WHILLITY:

[(1month)(15.0ps;) = (3 months)(13.5ps;) + (1 month)(11.5ps;)+]; +(1month)(10.0ps;) = (6 months)(9.0ps;)./ 12 months.

ZYP = 10.9 psi

WORST CASE ALLOWARLE ANNUAL AVERAGE YOLATILITY:

[(3 mm) (15.0ps;) - (3 mm) (13.5ps;) - (1 ms) (11.5px) - (0.5ms) (10.0ps;) + (5.5px;) (7.0px;)] /12 mouths

RVP NORET = 12.6 ps:

Note: This information for man 1 to Sertember 15 of each colored by to CFREC. 27.

40CFR 80.27 is an applicable standard for ger Drivis when Termicals. From May 1 to Sopt. 15.

ATTACHMENT C

Spreadsheet on Radian Corporation Gasoline Study and Other Gasoline Composition Data

Sinclair Oil Corporation Boi	se and Burl	ey Tier II's		RADIAN ST	UDY ON GA	SOLINE CO	MPOSITION	4	
	HAPs prese	nt in UNLEA	DED gasolin	e (Öliver an	d Peoples, 1	985 Study)			
	(WEIGHT %	5)							
Gasoline Constituents:	Benzene	Ethylbenze	Hexane	Isooctane	Naphthalen	Toluene	Xylene(-m)	Xylene(-o)	Xylene(-p)
Summer Regular	1.93	2.05	1.95	3.01	0	10.32	4,58	3.39	4.5
Summer Premium	2.15	2.1	1.23	6.8	0	14.22	4.72	3.69	4.7
Winter Regular	1.82	2.08	1.66	0	0.25	9.11	4.375	3.59	4.37
Winter Premium	2.07	2.14	1.14	0	0.21	12.92	4.8	3.66	4,
		-							
Summer Blends Average	2.04	2.075	1.59	4,905	0	12.27	4.65	3.54	4.6
Winter Blends Average	1.945	2.11	1.4	0	0.23	11.015	4.5875	3.625	4.587
% Change in HAP concent. (winter with summer as base)	-4.66	1.69	-11.95	-100.00	ERR	-10.23	-1.34	2.40	-1.3
Regular Average	1.875	2.065	1.805	1.505	0.125	9.715	4.4775	3.49	4.477
Premium Average	2.11	2.12	1.185	3.4	0.105	13.57	4.76	3.675	4.7
Total Average Value	l 199	1 2.09	1 50	1 245	0 12	1164	4 62	3.58	3 4.6

Cumene (Isopropylbenzene) Summer Regular	0.19
Summer Premium	0.17
Winter Regular	0.25
Winter Premium	0.19

ANNUAL LOADING RACK EMISSIONS using an ANNUAL AVERAGE MOLE FRACTION **GASOLINE SERVICE**

L = 12.46 SPMT

where tu = loading loss, lb/1000 gat

S = saturation factor, dimensionless, 1.0

P = true vapor pressure of flouid delivered, psla M = molecular weight of vapor, lb/lb-mole

A. . sudspecing the properties . "R

LL 📆			600	Ch	al 💥
979	99				1 00
PE		A.A.		3	2269 86 47 506 6
M₹					66.47
Υæ					506 6
	2011		1.0		

ANNUAL Gasoline Throughput, gallons per year =

AMMINAL

VUUTIVE				•
HAPs	Mole	L.L	Emissions	
Compounds	freellen	(1b/10 1 9al)	.(Ten/YEAR)	
Benzena	0.0054	0 0285	3.69	
Ethythenzene	0.0005	0.0026	0.34	
Hexane	> 0.0087	0.0459	5.95	
Naphtha lana	0.0000	3.14E-06	4.07E-04	
Tokusne ————		0.0401	5.19	
Trimethylpentane (2,2,4)	0.0019	0.0100	1.30	
Xyleno-m	0.0013	0.0069	0.69	-XXI ENE (HARITAD)
Xylune-a	0.0006	0.0032	0.41	1.08 tons pur year
Xylene-p	0.0010	0 0053	0.68	
Gasolina (RVP-10)	0.9730	5.1330	664.92	
TOTAL	L	1	683.38	**
TOTAL-HAPS ONLY			19.45 18.45	

DISTILLATE FUEL OIL SERVICE

L. # 12.46 SPM/T

where it = loading loss, lb/1000 gat

S = saturation factor, dimensionless, 1.0

P = true vapor pressure of liquid delivered, pala P = M = molecular weight of vapor, #v/lb-mole

T = absolute bulk liquid temperature . *R

La # 43 66 414 5 500 Chart below

1.00 0.0046

129.04 506.6

311199 0 E^3 nations

ANNUAL Distillate Fuel Oil Throughput, gallons per year = AMMILLA

AMNUAL				
IIAP*	Mole	L	Emissions	
Compounds	_fracilon_	(10/) 0 ; gal). /30E-06	(Ton/YEAR)	
Naphihalene	0.0005	7.30E-06	0.001	
Tokiene	0.0102	0.0001	0.023	
Xyluno-m	' 00115	0.0002	0.026	XYLENE (mixture)
Xylene-o	0.0031	0.0000	0.007	0.03 tons per year
Distillate Friel Oil #2	0.9747	0.0142	2,214	
TOTAL	1,0000		2 272	i
TOTAL- HAPS ONLY	***************************************	· · · · · · · · · · · · · · · · · · ·	0.057	
				•

TYPICAL STORAGE TANK EMISSIONS

Entiations are estimated using TARKS and are for a SINGLE:

,e lank, except as noted.

Storage tank emissions are comprised of: Wilhdrawal, roof-fitting, tim-seal, and standing losses. Gasculine Storage Tanks

0 0210 0.0000 0 0088 0 0059 2.1648 180 T 0 0039 0.0061 Hulling Tenefred Emissions 0.0014 0.000 0.0000 0.516 0.6020 0.0013 0.0019 0.4943 0.022 Enilssions 0 (1067 lourly Canks 301, 304, 311, 321 Himethypaniane (2,2,4) TOTAL-HAPS ONLY Gasoline (RVP-10) TOTAL VOCS Compounds IAPs Edylbenzana Naphillisland Xylana-as Xyteme-p Benzene Xylana-o Stante Stante

For the four (1) Tents: 2.066 9.048 | TOTAL-IIAPS ONLY 0.069 0.369

Tanks Transmix and Prover Emissions are nearly identical (per applicant's submittal) to each other

11APs Enlistions Enlistions 0.000.0 0.0016 0 00003 0.0056 0000 0 0002 0.2053 (ILM) (TallyEAR) 0.0001 F0000 000 0.0000 D EXXXH 10000 O CKKH Q (XXXX) 0.0469 O CKKIO Tokiene (fürsiliylpenlane (7,2,4) TOTAL TIMES ONLY Gasoline (RVP-10) TOTAL VOCS Senzana Ethythurizona Jazana Naphilialone Xybana-m Xylane-o Xylastic p

For the two (3) Taith's 0.0363 0.4218
| TOTAL-ITAP'S ONLY 0.0026 0.0112

DISTILLATE FUEL OIL STORAGE TANKS

TANKS 302, 305, 306

	Hourly :	Annual
HAPs	Endssions	Emissions
Compounds	(<u>(1941)</u>	(Ten/YEAR)
Naphihalene	0.0000	0.0002
Tokiene	0.0009	0.0041
Xylene-m	0.0011	0.0047
Xylema-o	0.0003	0.0013
Distillato Fuel Oil #2	0 0909	0.3979
TOTAL VOC	0 0932	0.4083
TOTAL-HAPS ONLY	0.0024	0.0103

For the three (3) Tenkei.	500: Am 1995	
TOTAL VOC	0 2796	1.2248
L_TOTAL::HAPS ONLY_	0.0071	0.0310

STORAGE TANK SUMMARY

	Hourty	Annual
IIAP*	Emissions	Emissions
Compounds	(11/11)	(Ten/YEAR)
Banzana	0.0133	0.0584
Ethylbenzene	0.0036	0.0157
l luxum	0.0200	0 0876
Naphhaluna	0.0003	0.0013
Tokune	0.0303	0.1326
frimothylpontano (2,2,4)	0.0057	0.0249
Xylene-in	0.0114	0.0500
Xylunu-o	0.0063	0 0275
Xylens-p	0 0075	0.0330
Gasoline OR Fuel Oil	2.3433	10.2639
TOTAL VOCS	2.4417	10 6949
TOTAL-HAPS ONLY	. 0 0984	0.4310

Xylones (mixture)

0.1105 Tons/yr

FUGITIVE EMISSIONS

The estimate of fugitive emissions is based on the information provided by the applicant and newly revised "inturim" AP-42 emission factors.

Notes and Commants:

- 1. Sinclair submittal appears to assume that fugitive emissions occur for 2000 hours per year, if emissions from these sources occur for 8760 hours per year, then the a linear ramping of emissions would predict HAP emissions of > 25 TPY for fugitive sources alone. This would mean that since all point and fugitive HAP emissions must be accounted for in applicability for a major HAP source, that a Tier II synthetic minor option is not an option for Sincialr's facilities. Therefore, this analysis will incorporate the newest AP-42 emission factors available and an assumption of 8760 hours per year. No additional documentation on the 2000 hour/year assumption was listed in the application.
- 2. The number of emissions sources is provided by the applicant.

· · · · · · · · · · · · · · · · · · ·		Emission	Total VOC	Assumed	Total VOC
:		Factor	Emissions	Hourstyr	Emissions
		lb/hr/source	(1b/hr)	Operation	(Tons/year)
GASOLINE (light liquid):					
Pump Seals	6	1.2E-03	0.007	8760	0 032
Valves	99	9.5E-05	0.009	8760	0.041
Flanges	212	1.7E-05	0.004	8760	0.016
Process Drains *1	2	0.07	0.140	8760	0.613
Oil/Water Separator	0		0.000	8760	0.000
		Leffir tetals:		Ten/yr tetal	
DISTILLATE FUEL OIL		 		·	
(hoavy fiquid) *2]		ļ		
Pranp Scale	3	2 9E-02	0.086	8760	0.377
Valves	76	5 5E-05	0.004	8760	0.018
# Bugget	150	2.4E-04	0.030	8760	0 168
Process Drains *1	0	0 07	0 (XX)	8760	0.000
OilWater Separator	0		0.0320	8760	0.000
SMANNERS OF THE PROPERTY OF TH	·	Lb/hr totala:			
	Fugitive G	rand Total:		lb/hr	1.26

*1 Emission factor for the drain is from AP-42 Table 9.1-2 Engitive Emission Factors for Patroleum Refineries, October/1980

HAP Emissions = VOC Emission Rate * HAP Liquid Mass Fraction

^{*2} Oblitato feel of outsiden factors are from the Angret 1985 AP-42 Interin timester factors by Off and Oas Prediction Operations

**************************************	·T:	VOC Emis	MAP Emission	VOC emis	IAP Emission
	Liquid Mass	1	Rate	Rato	Rate
HAP Component	fraction	(lbåu)	(16/61)	(Tons/year)	(Tons/year)
Benzane	0.0188	0.0030	0.0030	0.0132	0.0132
Elliykonzone	0 0207	0.0033	0.0033	0.0145	0.014
1exane	0.0181	0.0029	0 0058	0.0127	0.012
iaphthalene		0.0002	0 0002	0.0009	0.000
okuuna	0.0972	0.0156	0 0156	0.0682	0.068
rimethipentane 2,2,4	0.0151	0.0024	O(X)24	0.0106	0.010
(yiana (-ın)	0.0448	0.0072	0.0072	0.0314	0.031
(ylane (-o)	0.0349	0.0056	0.0056	0 0245	0.024
(ylene (-p)	0.0448	0.0072	0 0072	0.0314	0.03
Sesoline (RVP 10)	0.7943	0.1128	0.0000	0.4942	0 000
Totals		0.1602		0.702	

FUGITIYETIAP EMIS		VOC Emis	HAP Emission	VOC Emis	NAP Emission
	i iquid Mass	Raie	Rale	Rate	flate
HAP Component	Fraction	(lb/hr)	(lb/hr)	(Tons/year)	(Tons/year)
Benzena	0 000028	0.000004	0.000004	0.000016	0.000018
Naphthalene	0.001700	0.000218	0.000218	0.000957	0.000957
Fokuena	0.000200	0 000026	0.000026	0.000113	0.00011
(Yiena (Yin)	0.000300	0.000039	0.000038	0.000169	0.00016
(ylene (-o)	0.000600	0.000077	0.000077	0.000338	0.00033
(ylene (-p)	0.000000	8.000000	0.000000	0.00000	0.00000
Distillate Fuel Oil #2	0.997172	0.128121	I	0.561169	!
Totals	1.0000	0.1285	0.00036	0.5628	0.00

Emissions and Allowable Throughput Summary - Burley, Idaho Facility

SOURCE	The state of the s	ALLOWABLE	EMISSIONS	· · · · · · · · · · · · · · · · · · ·	ALLOV	/ABLE	7. Marina -	
IDENTIFICATION	Volatile C	rganio	Aggr	egated	Į.	IGHPUT	Allowable Product	
į	Compounds		Hazardous A	r Polistants	,		Type	
	(lb/hr)	(Tons/yr)	(lb/hr)		(Gallons/day)	(Gallons/yr)		
STORAGE TANKS								
Tank 301	0.52	2.26	0.022	0.097	N/A	88,359,000	Gasoline	
Tank 304	0 52	2.26	0.022	0.097	N/A	86,359,000	Gasoine	
Tank 311	0.52	2,26	0 022	0.097	NIA	86,359,000	Gasciine	
Tank 321	0.52	2.26	0 022	0.097	N/A	86,359,000	Gasoline	
	2.67	9.05	0.00	0.39	14//	541,445,5441	ransumine.	
Tank 302	0.09	0.41	0.002	0.010	N/A	155,599,500	Distincts Soul Off	
Tenk 305	0.09	0.41	0.002	0.010	N/A	165,599,500	Distillate Fuel Oil	
Fank 306	0.09	0.41	0.002	2.010	N/A	165,589,500	Distillate Fuel Oil	
	0.28	1.22	0.01	0.03	BILLY	100,000,0001	Distillate Fuel Oil	
Transinix Tank 400	0 05	0.21	0.001	0.006	N/A	38,080	Gasolina	
Proyer Tank	0.05	0.21	0.001	9.006	N/A	220,200	Gasotina	
	0.10	0.42	0.001	0.011	į įγι∧.	221J,2131	Casonia	
LOADING RACK					:			
Gasolinii Service	156 02	683.38	4.21	18.45	709.800	258,077,000	Gasoline	
Distillate Fuel Oil Service	0.52	2.27	0.00	0.00		311,189,000	Distillate Fuel Oil	
1	156.54	665.65	4.21	18.45	404,000		two imple Litel Of	
FUGITIVES								
Gasoline Service	0.160	0.702	0.047	0 207	N/A	N/A		
Distillate Fuel Oil Service	0.128	0.563	0.000	9.002	N/A	- 4		
	0.289	1.264	0,04 8	0.209	BIIV	HVA		
<u>Total Emissions: </u> Notes:	159.27	697,61	4.36	19.09				

A Charles to be a

N/A stands for Not Applicable

Annual storage tank emissions are derived from the EPA/API TANKS2.0 program.

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ATTACHMENT D

RVP 11, ASTM D4814-95a Variable RVP, RVP 13 Spreadsheets and TANKS2 Documentation (Information is for Boise Operations)

TABLE 3

Characteristic Components of Five Petroleum Fuels (Patton & Stevens 1984)

Component	(Six	Sam	ispline ipies) Weight	(Three	e Sa	Sasoline mpies) Weight	Aviation Gasoline (One Sample) Percent by Weight			nộim)	Diesei N (Three Se: Percent by	mpies)
D Baszens	0.47	•	3.4. 5	<0.7	•	3.2.*.:	· 40.2	<1.7			402 ·: : :	
The state of the s	3.4	-	10.	4.4	-	12 /5:	17		-	0.44	<1.7	
Envioenza	Lے	-	3.1 7. 3	: L3	•	4.7 3.7	0.77	0	-	0.23	<12 .	
- Xylenes	5.4	•	ir 👉	7.4	*	16 :	L.a	0.62	•	تــــــــــــــــــــــــــــــــــــــ	41.7 ·	
	0.64	-	LO	0.37	•	LQ ·	<0.7	0.75	•	2.35	d)	
Z	t.I	•	LS	t.J	*	ī. 9	a).Z	051	•	LO	<0 <u>.7</u> ·	¥.*
i Nacadaless	0.1	-	0.6	0.2	•	کـ٥	0,006	03	•	0.á	ais.	0.17 5 77 MA
Fuorene	<0.0003	•	0.02	40.0003	•	0.007	0.0005	0.006	•	0.03	0.07	0.10 mg to
T. Phinantarens	<0.0003	•	0.06	<0.0003	-	0.004	0.0004	0.02	•	0.03	0.25/ -	0.30 - / 2/_
	<0.0001			<0.000I		0.0006	0.000072	<1.0001			0.013	0.017 MIL
- Ezyiene dibromide	0.015	-	0.02				0,054					
Time	0.03	-	0.÷3	•		•	0.034					

an arbitrary cut-off. Leseman only reported these components and did not utilize them collectively in any experiment. Major components of the standard reference gasoline PS-6 are also listed in Table 2.

Table 4 presents several different proposals for standard gasoline mixtures. The first is a theoretical mixture utilized by A. Baehr of the U.S. Geological Survey to model selective transport of hydrocarbons in the unsaturated zone (Baehr 1987). His initial composi-

tion of a gasoline is based on a packed column gas chromatography analysis of a regular leaded gasoline reported by Aruell and Hoag (1984). With the exception of benzene and toluene. Baehr breaks his theoretical mixture into eight classes or ranges of constituents and performs a weighted average of the physical properties for each group based on weight percentage of constituents within that group. For example, for nine carbon to 11 carbon aromatics, Baehr gives an average molecular

TABLE 4'
Surrogate Gasoline Compound Mixtures Proposed in the Past

Saeir 1987 Weight Percent	Selected Constituent Groups (Baehr)	Constituents	Lyman 1988 Weight Percent	Succen 1988 Weight Percent	Stemenbach 1987 Weight Percent
	C. aikanes	[sobutane	2	•	*
		Nebucane	i,	•	5
<u> </u>	C ₁ -C ₄ aikanes	gobestave	14	*	10
		N-gentane	3	•	\$
		У-лежие	9	•	5
		2-methylgentane	3	15	•
		N-deptane	1_5	•	
		N-occide	Ţ	-	20
		2.24-trimethylpentane	*	1.5	5
4.7	Cr-Cts aikanes	Z-czeczythezane	5	•	•
		I-memythemne		5	
		7-timethylbenus	3		
		2.2.4-cinemythemne	2	•	
		7.7.5.5-ecramemytherane	1_5	*	**
	C ₁₂ aliphade	C.z alipnatic	10	•	
4.4	C, aromano	Sezzene	3	5 .	2
5 3	C _r aromage	Toiueze	<u>.</u>	ک	2 0
)_3	C ₁ aromatic	Xylenes mera	7	mem IS	(m.ç.o)mixare 10
				сака 5	\
				ortho 10	
		Ethylbenzene	2	5	. •
		1.2.4-crimethy/benzene	•	10	8
. 3	C _F -C ₁₁ aromatic	135-aimethylbenzene	S		
		LZ-diethyibenzene	5	•	•
-1	C _f alkenes	1-pentene	L	•	•
.7	CC., alkenes	1-derene	I5	•	•
		2-methyi 2-butane	•	•	5
<u>.</u>	C, alicyclics	cyclonerane	3	•	5
.8		methylcyclonexane	1	•	-

auldstaff	BORY	Composition	Ωf	Casoline v	#2	Diesel	Fuel
Kalativa	DIEA	COMBUCALLION	UL	DABBLING V	. 84	1112001	1, 1142 7

	Leac	led Gasoline	Unleaded	Gasoline	Die	sel	1/11/2.
	& Wht Vo	ol. t	1 Wht	Vol \$	1 Wht	Vol	<u></u>
Benzene	3.64	5	3.2 1/	4.5	<.2	<.3	
Toluene	10	14	12 1 p.01	16	<.2	<.3	. • •
Ethylbenzene	3,1	4.2	4.710,46	6.3	<.2	<.3	· ·
Xylenes (all)	11	15	16 11.95	21.5	<.2	<.3	•
							±

Occupational Exposure Limits - Emissions Limits

	OEI.	EI.	AAL(C)
Benzene	na	8.0E-04	1.2E-01
Toluene ·	375	25	3.75
Ethylbenzene	435	29	4.35
Xylene	435	29	4.35

Values for benzene are given in ug/m3, all others in mg/m3

& CONDENSED GLENIERL DICTORAR, IDTHED GUESSMER G. HAWLEY,

APPENDIX I
CHEMICAL COMPOSITION OF GASOLINE

<u>Compound</u>	Number of Carbons	Concentration (Weight Persent) (a)	Reference
Straight Chain Alkanes			
Propane n-Sutane n-Fentane n-Hexane(d) n-Hertane n-Octane n-Monane/ n-Decane/ n-Undecane n-Octecane/	3 4 5 6 7 8 9 10 11 12	0.01 - 0.14 3.93 - 4.70 5.75 - 10.92 0.24 - 3.50 0.31 - 1.96 0.36 - 1.43 0.07 - 0.83 0.04 - 0.50 0.05 - 0.22 0.04 - 0.09	10 10 10
Isobutane 2,2-Dimethylbutane 2,3-Dimethylbutane 2,2,1-Trimethylbutane	4 6 6 7	0.12 - 0.37 0.17 - 0.84 0.59 - 1.55 0.01 - 0.04	10
Necrentane Iscrentane 2-Methylpentane 3-Methylpentane 2,4-Dinethylpentane 2,3-Dinethylpentane 3,3-Dinethylpentane 2,2,1-Trinethylpentane 2,2,4-Trinethylpentane 2,1,1-Trinethylpentane 2,1,1-Trinethylpentane 2,1,1-Trinethylpentane 2,1,4-Trinethylpentane 2,1,4-Dinethyl-1-ethylpentane	5 5 6 6 7 7 7 8 8 8 8 8 8 9	0.11 - 2.30	8,10,11 8,10,11 8,10,11 10 10,11
2-Methylhexane 3-Methylhexane 2,4-Dimethylhexane 2,5-Dimethylhexane 3,4-Dimethylhexane 3-Tthylhexane 2-Methyl-3-ethylhexane 2,2,4-Trimethylhexane	7 7 8 8 8 8 9	0.36 - 1.48 0.30 - 1.77 0.34 - 0.82 0.24 - 0.52 0.16 - 0.37 0.01 0.04 - 0.13 0.11 - 0.18	10,11 10 10 10 10

		Concentration	
	Number of	(Weight	
Compound	Carbons	Percent) (a) Ref	erence
2,2,5-Trinethylbexane	9	·0.17 - 5.89	10
2,3,3-Trimethyliexane	9	0.05 - 0.12	10
2,3,5-Trinethylhexane	9	0.05 - 1.09	10
2,4,4-Trimethylhexane	9	0.02 - 0.15	10
	-	· · · · · · · · · · · · · · · · · · ·	
·2-Methylheptane	8	0.48 - 1.05	10
I-Methylhestane	8	0.63 - 1.54	
4-Mathylhaptane	æ	0.22 - 0.52	
2,2-Dimethylheptane	9	0.01 - 0.08	
2,3-Dimethylhestane	ģ	0.13 - 0.51	
2,5-Dimetry Lieptane	<i>3</i>	0.07 - 0.23	
2,6-911611711691116	7 6 ·	0.01 - 0.08	
3,3-Dimethylheptane	9 9 ·		
3,4-Dimethylhestane	9	0.07 - 0.33	
2,2,4-Trimethylhestane	10	0.12 - 1.70	
3,3,5-Triberbylieptane	10	0.02 - 0.06	
3-Ethylheptane	10	. 0.02 - 0.15	10
	_		
2-Methyloctane	9	0.14 - 0.52	
3-Merly Localne	9	0.34 - 0.85	10
4-Methylcotane	9	0.11 - 0.55	
2,5-Dimethyloctane	LO	0.06 - 0.12	10
· .			
2-Methylmonane	Id	0.06 - 0.41	
3-Methylnonane	10	0.06 - 0.32	IO
4-Methylmonane	10	0.04 - 0.25	10
:			
<u>Cvcloalkanes</u>		-	•
^	##		a 10
Cyclopentane	5 6	0.19 - 0.58	
Methylcyclopentane	•	Not quantifie	⊊ .o
1-Metay1-cis-2-			
ethylcyclopentane	8	0.06 - 0.11	10
1-Methy1-crans-1-	_		
strancations	<u> </u>	0.06 - 0.12	13
l-Cis-i-dimentryloyolopent	ane 7	0.07 - 0.13	10
l-Trans-2-dimethylcyclope	ntane 7	0.06 - 0:20	10
1,1,2-smimembyloyclopenta	ne 8	0.06 - 0.11	lo
l-Trans-2-cis-1-cri-	•		
memylcyclopencane	8	0.01 - 0.25	10
1-Trans-2-cis-4-trimethyl	cycle-	•	
Centane ·	8	0.03 - 0.16	10
Ethyloyolopentane	7	0.14 - 0.21	10
n-Propyloyclopencane	8	0.01 - 0.06	10
Isopropyloyolopencane	8	0.01 - 0.02	10
l-Trans-3-dimethyloyolohe	xane 8	0.05 - 0.12	10
Ethylcyclohexane	8	0.17 - 0.42	10

	Number of Carbons	Concentration (Weight Percent) (a)	Reference
Straight Chain Alkenes		•	
cis-2-butene	4	0.13 - 0.17	IO
Crans-2-butane	4	0.16 - 0.20	10
Pentane-l	5 5 6	0.33 - 0.45	10
cis-2-pentane	5	0.43 - 0.67	8,10
trans-2-pentane	3	0.52 - 0.90	10,11
cis-l-hexene		0.15 - 0.24	10
trans-1-bexane	6	0.13 - 0.36	10
cis-3-hexene	5	0.11 - 0.13	10
crans-1-bexane	5	0.12 - 0.15	
cis-l-heptane	7	0.14 - 0.17	10,11
crans-2-heptane	7	0.06 - 0.10	IO
Branched Alkanes		•	
2-Methyl-l-butane	5	0.22 - 0.66	8,10,11
3-Methyl-1-butane	5 # 5	0.08 - 0.12	
2-Methyl-2-butane	5	0.96 - 1.23	8,10,11
2,3-Dimethyl-1-butane	6	0.08 - 0.10	
· · · · ·			
2-Methyl-l-pentane	6	0.20 - 0.22	10,11
1,3-Dimethyl-1-pentane	7	0.01 - 0.02	10
1,4-Dimethyl-L-pentane	7	0.02 - 0.03	10
4,4-Dimethyl-L-pentane	7	0.5 (vcl)	* * **
2-Methyl-2-pentene	á	0.27 - 0.32	10,11
3-Mechyl-cis-2-pencane	á	0.35 - 0.45	LO
I-Mechyl-trans-I-pentane	5	0.32 - 0.44	IO
4-Methyl-cis-2-pentane	6	0.04 - 0.05	10
4-Methyl-crans-2-pencane	б	0.08 - 0.30	10
4,4-Dimethyl-cis-2-pentane		0.02 10	
4,4-Dimethyl-crans-2-pents	ine 7	Not quantified	10
3-Stayl-2-pentane	7	0.03 - 0.04	10
Cvclcalkenes			-
Cyclopentane	5	0.12 - 0.13	10
3-Mathylcyclopentane	6	0.03 - 0.08	10
Cyclohexene	ő	0.03 10	
Alkyi Benzenes	,		
Benzene(d)	6	0.12 - 3.50	6,7,8,9, 10,11,12

Compound	Number of Cations	Concentration (Weight Percent) (a)	Reference
Toluene(d)	7 .	2.73 - 21.80	5,6,7,8, 9,10,11,12
o-Kylene(d)	8	0.68 - Z.86	6,9,10,12
m-Xylene(d)	ā	1.77 - 3.57	10
p-Kylene(d)	3	0.77 - 1.5a	10
1-Methyl-4-ethylbensene	9	0.18 - 1.00	IQ
1-Methyl-1-ethylbendene	9	0.19 - 0.56	-6
1-Methyl-3-athylbencene	و و	0.31 - 2.36	6,9,10,11
1-Methyl-2-n-propylhense		0.01 - 0.17	6,9,10
1-Machy1-1-n-propylhense	ene 10	0.08 - 0.56	9,10
1-Methyl-1-isopropylbenz	tene 10	0.08 - 0.56 0.01 - 0 12	10
1-Methy:-3-t-butylbenser	ne li	0.03 - 0.11	
1-Methyl-4-t-butylbenzer		0.04 - 0.13	10
1,2-Dimethy1-1-ethylbenz		0.02 - 0.19	6,10
1,2-Dimethyl-4-sthylbens		0.50 - 0.73	6
1,3-Simethyi-2-ethylbens		0.21 - 0.59	
1,3-Gimethyl-4-athylbens			
1,3-Dimethy1-5-ethylbens	ene là	0.03 - 0.44 0.11 - 0.42	6,10
1,3-Cimethyi-5-c-butylbs	ensenell	0.02 - 0.16	. Ta
1,4-Dimethyl-2-ethylbens	zene 10	0.05 - 0.36	5, <u>1</u> 0
1.2.3-Trimethylbenzane	. 9.	0.21 - 0.48 0.56 - 3.30	5
1,2,4-Trimethylbensene	9	0.56 - 3.30	6,9,10,11
1,3,5-Trimethylbensene	, è	0.13'- 1.15	5,9,10
1,2,3,4-Tetramethylbenze	ene 10	0.02 - 0.19	6,10
1,2,3,5-Tetramethylbenze		0.14 - 1.06	6,9,10
1,2,4,5-Tetramethylbense	ene/ 10	0.02 - 0.19 0.14 - 1.06 0.05 - 0.67	6,9,10
Ethylbenzane(d)	а	0.36 - 2.86	6,9,10,
	•		11,12
l,2-Giethylbensene	10	0.57	9
l, 1-Giethylbenzene	10	0.05 - 0.38	6,9,10
n-Propyliencene	9	0.08 - 0.72	6,9,10
Isopropylbencane	9	<0.01 - 0.23 0.04 - 0.44	6,9,10,12
n-Butylbenzene	10		
Isobutylbensene	10	0.01 - 0.08	
sec-Butylbentene	10	0.01 - 0.13	-9,10
t-Butylienzane	10	0.12	9
n-Pencylbendene	11	0.01 - 0.14	
Ischentylbenzene	11	0.07 - 0.17	10

Compound	Number of Carbons	Concentration (Weight Dercent) (a)	Reference
Indan	9	0.25 - 0.34	
l-Methylindan	. 10	0.04 - 0.17	
2-Methylindan	10	0.02 - 0.10	
4-Methylindan	10	0.01 - 0.16	
5-Methylyindan	10	0.09 - 0.30	10
Tetralin	IO	0.01 - 0.14	10
Polynuclear Aromatic Hy	<u>vdracarbons</u>		
Naphthalene(d)	10	0.09 - 0.49	6,10
Pyrane	· 15	Not quantified	. 6
Benz(a) anthracene	13	Not quantified Not quantified 0.19 - 2.8 mg/	<u>.</u> 6
Senz(a) pyrane	20 '	0.19 - 2.8 mg/	'kg 6
Benzo(e) pyrane .	20	Not quantified	6
Benzo(g,h,i)perylane	18 20 20 21	Not quantified Not quantified	. 6
<u>Elements</u>	•		
3romine		عر 145 عر 30 – 30	3
Cadmium /		0.01 - 0.07 µg	
Chlorine,		80 - 300 µg/g	
Lead(b) /		530 - 1120 µg/	
<u> </u>		<0.6 - 1.4 µg/	∕ç 3
Sulfur(c)		0.10 - 0.15	(ASTM)
Vanadium /		<0.02 - 0.001	
		hā\ā	2,3
Additives			\$
Ethylene dibromide(d)		0.7 - 177.2 ==	em 4
Ethylene dichloride(d)		0.7 - 177.2 pg 150 - 300 pgm	8
Tetramethyl Lead		- · - #·#·	
Tecraethyl lead			

- a. Conversion from other units assumed 0.75 specific gravity.
- b. ASTM specification, maximum, unleaded gasoline, 0.013 g/1 maximum, conventional grade gasoline, 1.1 g/1. Title 13, CAC, Section 2253.7 maximum, leaded gasoline other than leaded high octane gasoline, 0.5 g/gallon maximum, leaded high octane gasoline, 1.0 g/gallon. Feder standards, January 1, 1986, maximum, 0.1 g/gallon.
- c. ASTM maximum, unleaded gasoline, 0.10 weight percent. Conventional grade gasoline, 0.15 weight percent, Title 13, CAC, Section 2252, maximum 300 ppm by weight.
- d. Compounds for which AALs are being developed.

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APPENDIX J

CHEMICAL COMPOSITION OF DIESEL FUEL

Compound	Number of Carbons	Concentration (Weight/ Percent)	Reference
Straight Chain Alkanes			3:4+3:50 ·
	.*** *:		6,7 9,19410
n-Monane With	26. 9	0.1	
n-Jecane 4/4	10	0.5 - 2	1,2,6,7
n-Undecane All	11	0.98 - 9	1,2,6,7
n-Jodecane Al-	12	0.96 - 11	1,2,6,7
n-Tridecane XIL	13	1.1 - 10	1,2,6,7
n-Tetradecane All	14	.1.1 - 9	1,2,6,7
n-Pentadecane ML	. 15	1.0 - 7	1,2,6,7
n-Zexadecane Mil	15	1.2 - 6	1,2,6,7
n-Eeptadecane MV	17	1.2 - 6	1,2,6,7
n-Octadecane Miv	18	0.82 - 5	1,2,6,7
n-Monadecane N/V	19	0.53 - 4	1,2,6,7
n-Eicesane NV	20	0.23 - 3	1,2,5,7
n-Eeneicosane NV	21		1,2,7
n-Docosane Niv	22	< 0.2	1,2,7
Branched Alkanes	-	•	2 g
2-Hethylheptadecane	18		7
2,5,10,14-Tetramethyl-			
pentadecane	19		1
2,5,10,14-Tetramethyl-			
pentadecane	20		1.
Alkyl Benzenes			
Benzane -	6 ·		7
Toluene	7		. 7
o-Xylene	8 8	•	7
m-Kylene	8		7
2-Ethyltoluene	9		7
3-Ethyltoluene	9 9		7
4-Ethyltoluene	9		7
Iscoropylbenzene	9		7
1,2,3-Trimethylbenzene	9		7 ~
l, 2, 4-Trimethylbenzane	9		7
l,3,5-TrimethyLhenzene	9		7
1,2,3,5-Tetramethylbenzer	ne 10		7
1,2,4,5-Tetramethylbenzer			7
Pentamethylbenzene	11		7
Biphenyl	12		7

A1.10

Polynuclear Aromatic Hydroca		٠	914-9760 3"/FK
Naphthalene(d)	عربية (10 مرية 10 مرية 11 مرية	0.13	6.7 215-107 6.7 215-107
<pre>Mathylnaphthalene 2,3,5-Trimethylnaphtalene</pre>	13	0.5) - 0.31	7
Fluorene Phenanthrene	13 14		7 4
Antizacene Przene	14		4
Senz(a)pyrane	20 4419 1111	0.07 ug/kg [k	4,8 770-1 (093 -6.5
Benzo(b) flouranthene Benzo(q,h,i) perylene	20 21	•	4

Elements

Sarium
Cadmium
Calcium
Chromium
Tobalt
.oper
Lead
Molybdenum
Mickel
Selenium
Vanadium
Zino

	: (814 4x 37
b 17-11-0.007 - 0.7 ug/g	3 . 7710 = 06/6/6
0.001 - 0.07 ug/g 0.1 ug/mi	5 1/56x0-7 05 1.0.
0.01 - 0.7 ug/g	_ 3 . Treat OK 6.5
0.007 - 0.1 ug/g 0.01 - 0.3 ug/g	3 ,50000 010 2,77
6 AL COME 0.1 ug/ml <0.001 - 0.07 ug/g	3 7407 1K 6.5
0.007 - 0.1 ug/g	3_14/2
0.0007 - 0.003 ug/g	
0.01 - 3 ug/g	5. 5x/0" 4.75

A STOREGE THE COUNT

Notes

a. Conversion from other units for gasoline assumed 0.75 specific gravity.

b. ASTM specification, max., unleaded gasoline, 0.013 g/l max., conventional grade gasoline, 1.1 g/l, Title 13, CAC, Section 2253.2, max., leaded gasoline other than leaded high octane gasoline, 0.3 g/gal max., leaded high octane gasoline, 1.0 g/gal. Federal standards, January 1, 1986, max., 0.1 g/gal.

c. ASTM max., unleaded gasoline, 0.10 weight percent conventional grade gasoline, 0.15 weight percent, Title 13, CAC, Section 2252, max. 300 ppm by weight.

d. Compounds for which AALs have been or are being developed.

.339 Me He (M) LULCOIL | HANDROOK OF MATHEMACIONE
SCIENTIFIC AND ENGINEERING
PAPAST TRACTORIES
ABAPAST TRACT

Title V Engineer:

ĎМ

Company Name:

Sinclair Oil Corp.

Location:

Boise, Idaho

Date Created: Today's Date:

January 4, 1996

Today's Date: 01/25/96

Calculation of Loading Rack Emissions

THIS SPREADSHEET IS DESIGNED TO ESTIMATE EMISSIONS BY MONTH

ENFORCEABLE STANDARD (ASTM D 4814-95a) FOR GASOLINE RVP variance with month

ASSUMPTIONS

1. TANKS2.0 provides the invisibly average true vapor pressure of the gasoline product AND the motar fraction of HAP constituents in the vapor phase of the gasoline product.

2. Gasoline RVP varies as allowed by ASTM D4814-95a Specificiations. HAP constituents remain the same throughout. They only vary with differing ambient conditions, as predicted by the TANKS2.0 program for HAPs present in the vapor phase.

Reference:

AP-42 Sect 5.2

only january is changed below

JANUARY	JANUARY JA	INUARY	
LL = 12 46 SPM/T	where t. = loading loss, lb/1000 gal	L. =	see Charl
	S = saturation factor, dimensionless,	1.0 S = see	1
	P = little vapor pressure, psia	ρ = ``	4.5876
	M = molecular weight of vapor, varie	s HoAto-mole M =	61.008
	T ≈ absolide temperature R	T=	511.1

JANUARY Gasoline Throughput, gallons per month, =

19438 3 E^3 gallons

HAPs	Vapor Mass	L ₄	Emissions
Compounds	Fraction	(leg (01\dl)	(Tendmenth)
Benzena	0 0032	0.0218	0.21
Ethylbenzene	0.0003	0.0020	0.02
Hexane	0.0053	0 0362	0.35
Napishalene	0.0000	4.07E-06	3 95€ 05
Tohiena	0 0063	0.0430	0.42
Trimethylpentane (2,2,4)	0.0009	0.0061	0.06
Xylene-m	0.0008	0.0055	0.05
Xylane-o	0.0003	0.0020	0.02
Xylene-p	0.0006	0.0041	0.04
Gasoline (RVP-15)	0 9842	6.7151	65.26

TOTAL 66 44
TOTAL-HAPS ONLY , 1,17

FEBRUARY		EBRUARY	FEI	BRUARY		
La = 12.46 SPM/T	where Li = load	ling loss, Ib/10	IOO gal	La. =	see Chart	
	S = satu	ration lactor, c	limensionless, 1.0	S = see	1	
		чары рієзвін		ρ≖	4.3253	
			of vapor, 66 5 lialib i	note M =	61.859	
		ykyle lembetak		ĭ =	511.1	
Annual Gasoline Through	iput, gallons per	year, =			19438.3 E^3 gallor	15
FEBRUARY					_	
HAPs	Mole	l.i.	Emissions			
Compounds	Fraction 0.0038	(19/19) (19/1) . (10/248	(19phpenth) 0 24			
Ethylbenzene	0 0003	0.0020	0.02			
Llexane	0 0061	0.0398	· ··· • •			
Naghthalene	0.0000	3 89E-06	** ****			
Tokiene	0 0052	0 0339				
Trimethylpentane (2,2,4)	0 0012					
Xylene in	0.0009		** ****			
Xylene-o	0.0004	0 0026	** ****			
Xylana p	0.0007	0.0026				
Gasolina (RVP-13.5)	0 9814					
Community (15.51 - 12.2)	0 3014	6.4012	62.21			
TOTAL	* 11 *		63.39			
TOTAL-HAPS ONLY			1.18			
MARCH	MARCI	14	£v.	IARCH		
Li = 12.46 SPM/F	where L. = load	ling loss, lb/10		L. a	see Chart	
	S = satu	ration factor, u	limensionless 1.0	S = see	1	
		vapor pressur		₽ #	4 5869	
			ol vapor, 66 5 lb/lb r	•	61.873	
		skile temperati	, ,	T =	511,1	
Armual Gasolina Through	vocit, nations per	vea: =			19438.3 E^3 gallor	
MARCH	,	, — ,			tainera E a Renot	ra
HAPs	Mole	la.	Emissions			
Compounds	Fraction	(11/19 : gah)	(Tentmenth)			
Benzena	0,0039	0.0270				
Benzena Ethylbenzena			0 26			
Benzena	0 0039	0.0270 0.0028	0 26 0 03			
Benzene Ethylbenzene	0 0039 0 0004 0 0062	0.0270 0.0028 0.0429	0 26 0 03 0.42			
Benzena Ethylkenzena Hexana	0 0039 0 0004 0 0062 0 0000	0.0270 0.0028 0.0429 4.12E-06	0 26 0 03 0 42 4 0 1E 05			
Benzena Ethylbenzena Hexana Naphihalena Tokiena	0 0039 0 0004 0 0062 0 0000 0 0054	0.0270 0.0028 0.0429 4.12E-06 0.0374	0 26 0 03 0.42 4 01E-05 0 36			
Benzena Ethylbenzena Hexana Naphthalena Tokiena Tokiena Timethylpantana (2,2,4)	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090	0 26 0 03 0 42 4 01E-05 0 36 0 09			
Benzena Ethylbenzena Hexana Naphthalena Tokiena Trimethylpentana (2,2,4) Xylena-m	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06			
Benzena Ethylbenzena Hexana Naphthalena Tokiena Trimethylpentana (2,2,4) Xylena-m Xylena-o	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062 0.0028	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06 0 03			
Benzena Ethylbenzena Hexana Naphihalena Tokiana Trinisthylpantana (2,2,4) Xylana-m Xylana-p Xylana-p	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009 0 0004 0 0007	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062 0.0028	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06 0 03 0 05			
Benzena Ethylbenzena Hexana Naphihalena Tokiana Trinishylpanlana (2,2,4) Xylana-m Xylana-o	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062 0.0028	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06 0 03			
Benzena Ethylbenzena Hexana Naphihalena Tokiana Trinisthylpantana (2,2,4) Xylana-m Xylana-p Xylana-p	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009 0 0004 0 0007	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062 0.0028	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06 0 03 0 05			
Benzena Ethylkenzena Hexana Naphihalena Tokiana Trimethylpantana (2,2,4) Xylana-m Xylana-n Xylana-p Gasolina (RVP-13.5)	0 0039 0 0004 0 0062 0 0000 0 0054 0 0013 0 0009 0 0004 0 0007	0.0270 0.0028 0.0429 4.12E-06 0.0374 0.0090 0.0062 0.0028	0 26 0 03 0 42 4 01E-05 0 36 0 09 0 06 0 03 0 05 65 95			

APRIL	APRIL		APRIL		
.ı = 12 46 SPM/T	where Li = loadii	ng koss, lb/10X	X) gal	1.1. =	see Chart
			mensionless, 1.0	S = see	\$
		apor pressure		P =	3.1001
			f vapor, 66.5 tb/lb-mote	M =	67.04 9
	Auzda = T	de temperatu	re, 508°R	T #	511.1
Annual Gasoline Through	ıpıd, gallons per ye	ar, =			19438,3 E^3 gallons
APRIL					
HAPs	Mole	Lı	Emissions		
Compounds	fracilen	[[M16 18a]] -			
Benzene	0.0063	0.0319	031		
Ethylbenzene	0.0006	0.0030	0.03		
llexane	0.0100	0.0507	0.49		
Maphihalene	0 0000	3.02E-06	2 94E-05		
Tokiene	0 0089	0.0451	0.44		
Trimethylpentane (2,2,4)	0 0023	0.0117	0.11		
Xylene-m	0.0016	0.0081	0.08		
Xylene o	0.0007	0.0035	0.03		
Xylene p	0.0012	0.0061	0.06		
Gasoline (RVP-9)	0 9684	4 9070	47,69		
TOTAL	**** *** *** *** **********************	***************************************	49.25		
TOTAL-HAPS ONLY			1.56		
MAY	MAY		MAY		
Li = 12.46 SPM/T	where LL = loadi			Li. #	ęęę Chart
	S = satur	ation factor, d	limensionless, 1.0	S = see	1
	P ≈ նա <u>թ</u> ւ	rapor preseru	e, psia	₽ ≠ ``	3.401
	M = mole	cıdar weight d	of vapor, ib/lb-mole	M =	67.077
	T = absol	ule temperalı	ire, "R	T ∌	511.1
Annual Gasoline Through	iput, gallons per y	ear, =			19438.3 E^3 gallons
MAY HAPs	Mole	Li	Emissions		
Compounds	Fracilon	Ub/10 coatt	_(Ten/menth)_		
Banzene	0.0065	0.0361	-11======0:35		
Ethylbenzene	0 0007	0.0039	0.04		
Hexane	0.0103	0.0573	0 56		
Naphthalene	0.0000	331E-06	3.22E-05		
Tokiene	0.0094	0.0523	051		
Trknethylpentana (2,2,4)	0.0025	0.0139	0 14		
Xylene-m	. 0.0017	0.0095	0.09		
Xylene o	0.0007	0.0039	0.04		
Xylene-p	0.0013	0.0072	0.07		
Gasoline (RVP-9)	0 9670	5.3778	52.27		
TOTAL	-v s v · s ccas and whe desprime		54.06		
TOTAL-HAPS ONLY		-	1.79		

JUNE	JUNE		JUNE		
L. = 12.46 SPM/T	where I = loadi	ng loss, #b/100		1. . =	see Charl
			inensionless, 1 0	S ≠ see	1
		apor pressur		ρ=	3 6857
			f vapor, 66.5 lb/lb-mole	M ≠	67.101
		ule temperatu		T #	511.1
Annual Campian Theory					•
Annual Gasoline Through JUNE	rivu' flattouz bet A	ea(, =			19438.3 E^3 gallons
IIAPs	Mole	L.	Emissions !		
Compounds			(Tournenth)		
Benzene	0 0067	0 0404	1000 PER 11.		
Ethylbenzene	0.0007	0 0042	0.04		
llexane	0.0105	0 0633	0 62		
Naphthalene	0.0000	3.59E-06	3.496-05		
Tokiene	0.0098	0.0591	0.57		
Trimethylpentane (2,2,4)	0 0027	0.0163	0.16		
Xylene-m	0 0018	0 0109	0.11		
Xylone-o	0.0008	0.0048	0.05		
Xylene-p	0.0013	0.0078	0.08		
Gasoline (RVP-9)	0 9657	5.8222	56.59		
			33.33		
TOTAL			58.60		
TOTAL-HAPS ONLY			2.01		
JULY	JULY		JULY		
Li. = 12.46 SPM/T	where L. = loadi	na loss (b/10		L. #	see Chart
	S = salu	ation factor d	imensionless 10	S = see	1
	P # true v	S = saturation factor, dimensionless, 1.0 P = true vapor pressure, psia			3 9976
	M = mole	cular weight o	il vapor, ib/lb-mole	Pa M≖	67.126
	T ≔ absol	ule lemperatu	ие *R	Τ=	511.1
		•	,	• -	
Annual Gasoline Through JULY	yas, gallans per y	eaf. =			19438 3 E^3 gallons
HAPs	Mole		Emissions		
Compounds	Fracilen		(Terimenth)		
Benzene	0 0069	0.0451	0 44		
Ethythenzene	0.0007	0.0046	0 04		
Hexane	0.0108	0.0706	0 69		
Naphihalone	0.0000	3 90E-06	3 79E 05		
Tokiena	0 0102	0.0667	0.65		
Trimethylpentane (2,2,4)	0.0029	0.0190	0.18		
Xyluna in	, 0 (X)18	0 0124	0 12		
Xylene-o	0.0XX08	0.0052	0.05		
Xylene-p	0.0014	0 0092	0 09		
Gasoline (RVP-9)	0 9644	6.3087	61.32		
TOTAL			C'3 C'3		
TOTAL-HAPS ONLY		•	63.58		
· ~ tortivl.a niir i			2 26		

AUGUST	AUGUS	T	AUGUST			
Li. = 12 46 SPM/f	where Lr = toac			Lı ∓	see Chart	
	S = salu	ration factor, d	limensionless, 1.0	S = see	see Chall	
		vapor pressur		P =	3.8657	
			ot vapor, llu/llu-niole	M.=	67.116	
	T = abso	akute temperak	ue, "R	1 =	511,1	
Gasoline Throughput, ga AUGUST	illans per month	=			19438.3 E^3 galk	Di 15
IIAPs	Mole	L	Emissions			
Compounds	Fraction	(led : 01/41)				
Benzene	0 0068	0.0430				
Ethylbenzene	0 0007					
lexane	0 0107					
Naphilialena	0.0000					
Tokume	0 0101					
Trimethylpeniane (2,2,4)	0 0028					
Xviene-m	0 0018					
Xyiene-o	0 0008					
Xylene-p	0 0014					
Gasoline (RVP-9)	0 9650					
TOTAL			61.48			
TOTAL-HAPS ONLY			2.16			
SEPTEMBER	SEPTEME	IER	SEPTEMB	ER		
Li = 12 46 SPM/T	where Li. = load	ling loss, lid (0	000 gal	La.≍	see Chad	
	S = salu	ration tactor, c	limensionless, 1 0	S = see	1	
	P ≈ Inte	Аміня інперін	e, psia	Pa	3.5289	
	M = mul	ecular weight r	of vapor, flutto male	M =	67.088	
	l – alısı	skilo lengserali	au, "K	1 -	511.1	
Gasolnie Throughput, ga	वीत्वाड वृद्धा वावक्षीर	<u>14</u>			19438 3 E^3 gail	ZIKI
SEPTEMULK HAPs	ttata.		an yang pingganan ang			
*** ·* **	Mole	L	Emissions			
Canpands Bensene	fr <u>action</u> 0.0066	. ((69 t 9 1 19)) . 1800 0	(Fentmently)			
Ethylbenzene	0.0007	0.0040	0.04			
l lexame	0.0104	0.0600	0.58			
Naphthalene	0.0000	3.44E-06	3.34E-05			
Toluena	0 0096	0.0554	0.54	•		
Trimethylpentane (2,2,4)	0.0026	0.0150	0.15			
Xylene-m	10.0017	0 0098				
Xylene-o	0.0007	0.0040				
Xylene-p	0.0013					
Gasoline (RVP-9)	0.9664	5,5775				
TOTAL		······································	56 09			
TOTAL-HAPS ONLY			1.88			
			£.44			

OCTOBER	OCTOBER		OCTOBER		
L. = 12 46 SPM/T	where Li = loadir	ng ioss, Ita/1000) gai	L1. E	see Chait
	S = sakna	akar lacior, din	iciisioniless, 1,0	S = see	1
	P = time vajna (nessino, paid			₽=	3.5276
	M = molec	ala weight of	vapor, lb/lb mole	M =	66 498
	Ĩ = alısok	ne lemperatur	ı, *R	¥ ==	511.1
Gasoline Throughput, ga	Nons per month =				19438.3 E^3 gall
OCTOBER	· · · · · · · · · · · · · · · · · · ·				sassamina a Bana.
HAPs	Mole	u	Émissions		
Compounds	Fraction	1 Mag. 91141			
Benzene	0.0056	0 0320	031		
Ethylbanzena	0 0005	0.0029	0.03		
Hexane	0.0090	0.0515	0.50		
Naphihalene	0.0000	3 41E-06	3 31E-05		
Tokiene	0.0080	0.0457	0 44		
Trimethylpentane (2,2,4)	0.0021	0.0120	0 12		
Xylene-in	0.0014	0.0080	0.08		
Xylene-o	0.0006	0.0034	0 03		
Xylene-p	0.0011	0 0063	0.06		
Gasolate (RVP-10)	0.9717	5 5567	54 01		
TOTAL			ES SO		
	NOVEMBER where Lr. = loadir		55.58 1.57 DVEMBER	1. =	sua Climit
TOTAL-HAPS ONLY NOVEMBER	ibaci = .1 stativ Statas = 2 Vaut = 9 Sekat = M	y loss, llul (XX) that lactor, din apor prassure, anar weight of	1.57 DVEMBER) gal hensionless, 1.0 psia vapor, lb/lb-mole	l. = S = see P = M =	see Chait 1 3 6717 64 415
TOTAL-HAPS ONLY	ibaci = .1 stativ Statas = 2 Vaut = 9 Sekat = M	enszend node nip 'koszel tekin igo 'koszel de	1.57 DVEMBER) gal hensionless, 1.0 psia vapor, lb/lb-mole	S = see P =	1 3 6717
TOTAL-HAPS ONLY NOVEMBER	where Lr. = loadir S = salura P = true y M = molec T = absolu	y loss, llul (XX) that lactor, din apor prassure, anar weight of	1.57 DVEMBER) gal hensionless, 1.0 psia vapor, lb/lb-mole	S = see P = M =	3 6717 64 415
TOTALHAPS ONLY NOVEMBER LL = 12 46 SPM/T Gasoline Throughput, ga	where Lr. = loadir S = salura P = true y M = molec T = absolu	ig loss, llv1000 ilkur factor, din apor pressure, cular weight of the temperature	1.57 DVEMBER) gal hensionless, 1.0 psia vapor, lb/lb-mole	S = see P = M =	1 3 6717 64 415 511.1
TOTALHAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds	where L. = loadii S = satura P = true v M = molec T = absoli tions per month = Mole Fraction	ng loss, MATOX alkar factor, din apor pressure, cular weight of the temperature L.c. [bd10 2 031] [1.57 DVEMBER) gal persionless, 1.0 psia vapor, Multimole 1, "R Emissions [20/[ngn[h]]	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ganovember HAPs Compounds Benzone	where L. = loading S = satura P = true v M = molect T = absolutions per month = Mole Fraction	ng loss, MATOX alkar factor, din apor pressure, cular weight of the temperature L. L. L. U. O. 265	1.57 OVEMBER) gal heristoriess, 1.0 psia vapor, lb/lb-mole 1, "R Emissions [90/m9n(h) 0.26	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ganovember HAPs Compounds Benzone Ethylbenzene	where L. = loading S = satura P = true y M = molect T = absolutions per month = Mote Fraction 1 0 0046 0 0004	ng loss, Mv1000 ulkur factor, din apor pressure, cular weight of the temperature L. L. U.0265 0.0023	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, librib mole 1, "R Emissions Tenissions 0.26 0.02	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzone Ethylbenzene Huxane	where L. = loadii S = satura P = true v M = molec T = absoli Itons per month = Mole Fraction	ng loss, Mv1000 sikur factor, din apor pressure, cular weight of the temperature L1. L2. 0.0265 0.0023 0.0427	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth) 0.26 0.02 0.41	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Elhylbenzene Huxane Naphthalene	where L. = loadii S = satura P = true v M = molec T = absolutions per month = Mole Fraction	ng loss, M/1000 sikur factor, din apor pressure, cular weight of the temperature L. L. L. 0.0265 0.0023 0.0427 3.44E-06	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth 0 26 0 02 0 41 3.34E-05	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Elhylbenzene Huxane Naphthalene Tokiena	where L. = loadin S = satura P = true y M = molec T = absolutions per month = Mole Fraction	ng loss, M/1000 sikin factor, din apor pressure, cular weight of the temperature Li. U.0.265 0.0023 0.0427 3.44E.06 0.0369	1.57 OVEMBER O gal Heristonless, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12 46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Elhylbenzene Huxane Naphthalene Tokiena Trimothylpentane (2,2,4)	where L. = loadii S = satura P = true y M = molec T = absolutions per month = Mole Fraction (0.0046) 0.0004 0.0004 0.0004 0.0005	ng loss, M/1000 alkin factor, din apor pressure, cular weight of the temperature L.L.	1.57 OVEMBER Ogal Heristonless, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0.08	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12.46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Ethylbenzene Huxane Naphthalene Tokiena Trimothylpentane (2,2,4) Xylene-m	where L. = loadin S = satura P = true y M = molec T = absolutions per month = Mole Fraction	ng loss, llv/1000 slich factor, din apor pressure, cular weight of the temperature U.S. U.S. U.O.265 O.O.23 O.O.23 O.O.427 3.44E.06 O.O.369 O.O.063	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Entissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0 06	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER LL = 12.46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Ethylbenzene Huxane Naphthalene Tokuena Trimuthylpentane (2,2,4) Xylene-m Xylene-o	where L. = loadin S = satura P = true y M = molec T = absolutions per month = Mole Fraction (0.0046) 0.0004 0.0004 0.0004 0.0005	ng loss, llv/1000 slich factor, din apor pressure, cular weight of the temperature 0.0265 0.0023 0.0427 3.44E.06 0.0369 0.0063 0.0029	1.57 OVEMBER Ogal Heristonless, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0.08	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12.46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Ethylbenzene Illuxane Naphthalene Tokiena Trimuthylpentane (2,2,4) Xylene-m Xylene-o Xylene-p	where L. = loadin S = satura P = true v M = molec T = absolutions per month = Mole Fraction	19 loss, llv/1000 alion factor, din apor pressure, cular weight of the temperature 0 0262 0 0427 3 44E 06 0 0369 0 0063 0 0029 0 0046	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Entissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0 06	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER LL = 12.46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Ethylbenzene Huxane Naphthalene Tokuena Trimuthylpentane (2,2,4) Xylene-m Xylene-o	where L. = loadin S = satura P = true y M = molec T = absolutions per month = Mole Fraction (0.0046) 0.0004 0.0004 0.0004 0.0005	ng loss, llv/1000 slich factor, din apor pressure, cular weight of the temperature 0.0265 0.0023 0.0427 3.44E.06 0.0369 0.0063 0.0029	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Emissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0 06 0 03	S = see P = M =	1 3 6717 64 415 511.1
TOTAL-HAPS ONLY NOVEMBER Li = 12.46 SPM/T Gasoline Throughput, ga NOVEMBER HAPs Compounds Benzene Ethylbenzene Illuxane Naphthalene Tokiena Trimuthylpentane (2,2,4) Xylene-m Xylene-o Xylene-p	where L. = loadin S = satura P = true v M = molec T = absolutions per month = Mole Fraction	19 loss, llv/1000 alion factor, din apor pressure, cular weight of the temperature 0 0262 0 0427 3 44E 06 0 0369 0 0063 0 0029 0 0046	1.57 OVEMBER O gal Heristoniess, 1.0 psia vapor, lb/lb-mole 1, "R Entissions Ten/menth 0 26 0 02 0 41 3.34E-05 0 36 0 06 0 03 0 04	S = see P = M =	1 3 6717 64 415 511.1

DECEMBER	DECEMBER DEC	CEMBER	
Li = 12.46 SPM/f	where Li = loading loss, lb/1000 ga	l l⊾#	see Chart
	S = saturation factor, dimens	ionless, 1 0 S ≠ şee	1
	P = true vapor pressure, 4.0	psia P =	4.123
	M = molecular weight of vapo	or, 66 5 lb/lb-mole M #	61.847
	T = absolute temperature, 50	18°R T =	511.1

Annual Gasoline Throughput, gallons per year, =

19438.3 E^3 gallons

HAPs	Mole	L	Emissions
Compounds	Fraction	((b/10) gal).	(Tentmenth)
Benzene	0.0037	0 0230	0 22
Ethylbenzene	0.0003	0.0019	0 02
Hexane	0.0060	0.0373	0.36
Naphthalene	0.0000	3.70E-06	3 60E-05
Tokiene	0.0051	0 0317	0.31
Frimethylperitane (2,2,4)	0.0011	0 0068	0.07
Xylene m	0.0009	0.0056	0.05
Xylene-o	0.0004	0.0025	0 02
Xylene-p	0 0006	0.0037	0.04
Gasoline (RVP-135)	0 9820	6.1043	59.33
TOTAL.			60.42
TOTAL-HAPS ONLY			1.09

ANNUAL LOADING RACK EMISSIONS (RVP 10 with Singlair HAPs)
VOC Aggreg HAP Single HAP Single HAP
Emissions Emissions lexane Emis Toluene
(Tonly1) (Tonly1) (Tonly1) (Tonly1)
712.17 19.24 6.02 4.50

	VOC	Aggregale	lexane
	Emissions	HAPs	Emissions
	(Tonknonth)	(Torvinorith)	(TorVmonth)
January	66 44	1.17	0 35
February	63 39	1.18	0.39
March	67.24	1.29	0.42
April .	49 25	1.56	0.49
May	54 06	1.79	0.56
June	58 60	2.01	062
July	63 58	2.26	0 69
August	61.48	2.16	066
September	56 09	1.88	0.58
October	55 58	1.57	0.50
November	56 04	1.27	041
December	60.42	1.09	0.36

ASTM D4814-95a allowable RVPs

TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS ENIBSIONS REPORT - DETAIL FORMAT TANKS PROGRAM 2,0

Identification

401 season Identification No.:

Bo≸se

Cİty: Stato:

Sinclair Oil Company: Type of Tank:

lank Dimensions

External floating Roof

69 839400 69 Diameter (ft):

Volume (gal lons): ** Infravery

Paint Characteristics

Light Rust White/White Good Shell Cordition: Shell Color/Shade: Shell Paint Cowlition:

Roof Characteristics

Double Deck Rouf Type:

fitting Category:

Ypical

lank Cunstruction and Rim-Seal System Construction: Primary Seal:

Mechanical Shoe Shoe-mounted Secordary Seat: Roof Fitting/Status

Occupit ity

Rim Vent (6 in. Olameter)/Helyhted Mech. Actuation, Gask. Gauge-Hatch/Sample Hell (8-in. Olam.)/Helyhted Mech. Actuation, Gask Gauge-Float Well (20-in. Olam.)/Unkolted Cover, Ungask. Vactum breaker (10-in. Diam. Well)/Welghted Mech. Actualion, Gask. Unstorred Guide-Pote Well/Ungaskeled Stiding Cover Roof Leg (3-in. Diametur)/Adjustable, Double-Deck Roofs Access Hatch (24. in. Dism.)/Bolted Cover, Gasketed toof Drain (3-in, Diameter)/Open

Auteorological Data Wated in Emission Calculations: Boise, Idaho

Mixture/Component	Honth			Surf. (deg f) Max.	Liquid Bulk Temp. (deg f)		ressures Min.	(psia) Max.	Vapor Moi. Veight	Liquid Mass Fract.	Hass	Hol. Velyht	Basis for Vapor Pressure Catculations
Gasoline RVP 9-Sinclair HAPs Benzene Ethylbenzene Hexane (-n) Isooctane	APR	52.46	45.90	59.03	51.12	3.1001 0.9440 0.0831 1.5673 0.4345	N/A N/A N/A	N/A N/A			0,0006 0,0100	106.17 86.17	Option 2: A=6.9050, B=1211.033, C=220.790 Option 2: A=6.9750, B=1424.255, C=213.210 Option 2: A=6.8760, B=1171.170, C=224.410
Naphthatene C-10, H-8 Totuene Xytene (-m) Xytene (-o) Xytene (-p) "Paraxytene"						0.0017 0.2600 0.0995 0.0539 0.0746	H/A H/A H/A H/A H/A	H/A N/A N/A		0.0151 0.0013 0.0972 0.0448 0.0349	0.0000 0.0089 0.0016 0.0007	128.16 92.13 106.17 106.17	Coption 1 Coption 2: A=7.1463, B=1831.571, C=211.821 Option 2: A=6.9540, B=1344.800, C=219.480 Coption 2: A=7.0090, B=1426.266, C=215.110 Coption 2: A=6.9980, B=1474.679, C=213.690
Gasoline (RVP 9) Gasoline RVP 9-Sinctair HAPs Benzene Ethylbenzene	HAY	56.94	49.41	64.47	51.12	3.8888 3.4010 1.0722	H/A H/A H/A	H/A H/A	67.077	0.0448 0.7043 0.0188	0.0012 0.9684 0.0065	66.50	Option 2: A=7.0206, B=1474.403, C=217.773 Option 4: RVP=9.00, ASIH Stope=2.5 Option 2: A=6.9050, B=1211.033, C=220.790
Hexane (-n) Isopotane Naphthalene C-10, H-8 Iotuene						0.0975 1.7660 0.5209 0.0021 0.2999	A\K A\K A\K A\K A\K	N/A N/A H/A		0.0207 0.0181 0.0151 0.0013 0.0972	0.0007 0.0103 0.0025 0.0000 0.0094	106.17 86.17 114.22 128.16	Option 2: A=6.9750, B=1424.255, C=213.210 Option 2: A=6.8760, B=1171.170, C=224.410 2 Option 1 3 Option 2: A=7.1463, B=1831.571, C=211.821 Option 2: A=6.9540, B=1344.800, C=219.480
Xytene (-m) Xytene (-o) Xytena (-p) "Paraxytene" Gasotine (RVP 9)						0.1165 0.0636 0.0874 4.2618	A\H A\H A\H	H/A N/A		0.0448 0.0349 0.0448	0.0017 0.0007 0.0013	106.17 106.17 106.16	Option 2: A=7.0090, B=1426.266, C=215.110 Option 2: A=6.9980, B=1474.403, C=213.690 Option 2: A=7.0206, B=1474.403, C=217.773 Option 4: RVP=9.00, ASIM Stope=2.5
Gasoline RVP 9-Sinclair HAPs Benzene Ethylbenzene Nexane (-n) Isooctane	HUL	60.89	52. 9 2	68.86	51.12	3.6857 1.1969 0.1119 1.9580 0.6006	H/A H/A H/A H/A	N/A H/A H/A		0.0188 0.0207 0.0181	0.0067 0.0007 0.0105	106.17 86.17	Option 2: A=6.9050, B=1211.033, C=220.790 Option 2: A=6.9750, B=1424.255, C=213.210 Option 2: A=6.8760, B=1171.170, C=224.410
Naphthatene C-10, H-8 Toluene Xytene (-m) Xytene (-o) Xytene (-p) "Paraxytene"	•			1		0.0025 0.3394 0.1334 0.0734	H/A H/A H/A H/A	N/A		0.0151 0.0013 0.0972 0.0448 0.0349	0.0018 0.0008	128.16 92.13 106.17 106.17	2 Option 1 5 Option 2: A=7.1463, B=1831.571, C=211.821 Option 2: A=6.9540, B=1344.800, C=219.480 7 Option 2: A=7.0090, B=1426.266, C=215.110 7 Option 2: A=6.9980, B=1474.679, C=213.690
Gasotine (RVP 9) Gasotine RVP 9-Sinctair HAPs Benzene	JÜL	64.94	56.05	73.82	51.12	0.1003 4.6142 3.9976 1.3371	H/A H/A H/A H/A		67.126	0.0448 0.7043 0.0188	0.0013 0.9657 0.0069	106.16 66.50	Option 2: A=7.0206, B=1474.403, C=217.773 Option 4: RVP=9.00, ASIM Stope=2.5 Option 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene Hexane (-n) Isooctane						0: 1286 2: 1725 0: 6945	H/A H/A H/A	#/A #/A		0.0207 0.0181	0.0007 0.0108	106.17 86.17	Option 2: A=6.9750, B=1424.255, C=213.210 Option 2: A=6.8760, B=1171.170, C=224.410 Option 1

Mixture/Component	Honth			Surf. (deg f) Hax.	Liquid Bulk Tamp, (deg f)		Pressures Hin.	(psia) Max.	Vapor Mol. Veight	t iquid Hass Fract .	Mass	Hol. Weight	Basis for Calculation	Asbot, Stezer	# €	
Maphthalene C-10, H-8						0.0030	N/A	*/A		0.0013	0.0000	128.16	Option 2:	A=7.1463, 8:	1831.571,	C=211.821
Toluene						0.3843								A=6.9540, B=		
Xylene (-m)						0.1530								A=7.0090, B		
Xylane (-o)						0.0847	N/A	H/A		0.0349	8000.0	106,17	Option 2:	A=6.9980, B	=1474.679	C=213.690
Xylene (-p) "Paraxylene"						0.1152	H/A	N/A		0.0448	0.0014	106.16	Option 2:	A=7.0206, B	=1474.403.	C=217.773
Gasoline (RVP 9)						4.9999	N/A	N/A		0.7043	0.9644	66.50	Option 4:	RVP=9.00, A	SIM Slope=2	!.5
Gasotine RVP 9-Sinclair MAPs	AUG	63.26	55.14	71.38	51.12	3.8657	' ¥/A	H/A	67.116							
Benzene						1.2774				0.0188	8,000.0	78.11	Option 2:	A=4.9050, B	*1211.033,	C#220.790
Ethylbenzene						0.1215	H/A	N/A		0.0207				A=6.9750, B		
Haxane (-n)						2.0813	H/A	N/A	ı	0.0181	0.0107	86.17	Option 2:	A=6.8760, B	#1171.170 ,	C=224.410
Isoociane						0.6555	H/A	H/A		0.0151			Option 1			
Naphthatene C-10, H-6						0.0028	N/A	N/A		0.0015				A=7.1463, B	=1831.571,	C=211.821
1 o tuene						0.3651	N/A	H/A	4	0.0972	0.0101	92.13	Option 2:	A=6.9540, #	#1344.800	C#219,480
Kyterio (-m)						0.1446	¥/A	H/A	l.	0.0448				A=7.0090, B		
Kylene (-o)						0.0798	N/A	N//		0.0349	8000,0	106.17	Option 2:	A=4.9980, 8	=1474.679,	C=213.690
Xylene (-p) "Paraxylene"						0.1088	H/A	N//		0.0448	0.0014			A=7.0206, B		
Gasatine (RVP 9)						4.8366	H/A	N/A		0.7043	0.9650			RVP=9.00, A		
Gasoline RVP 9-Sinclair HAPs	SEP	58.75	51.48	66.02	51.12	3,5289) H/A	N N//	47.088							
Botteura						1.1276		-			0.0066	78.11	Option 2:	A=6.9050, B	-1211.033,	£=220.790
Ethylbenzese						0.1039) H/A	N//	ı	0.0207				A=4.9750, 8		
liexane (-n)						1.8518	3 N/A	¥//	١	0.0181	0.0104	86.17	Option 2:	A=6.8760, 8	=1171.170,	C=224.410
i sooctana						0.5558	3 H/A	N//	١	0.0151	0.0026	114.27	2 Option 1	_	•	
Naphthatene C-10, H-6						0.002	5 N//	N//		0.0013	0,0000	128.10	6 Option 2:	A=7.1463, B	=1831.571,	C#211.821
Toluene						0.317	5 8//	N R//		0.0972	0,0096	92.13	Option 2:	A=6.9540, 8	#1344.800 <u>.</u>	E#219.480
Xylone (-m)						0.1246) N/H	N N/	١	0.0448	0.0017	106.1	7 Option 2:	A=7.0090, B	1=1426.266	C=215.110
Xylene (-o)						0.0679	9 14/4	N #//	١	0.0349				A=6.9980, B		
Xylene (-p) "Paraxylene"						0.093	N//	N/A	١.	0.0448	0.0013			A=7.0206. B		
Gasoline (AVP 9)						4.420	2 N/I	N N/	٨	0.7043	0.9664			RYP=9.00, /		

TANKS PROGRAM 2,0 EMISSIONS REPORT - DETAIL FORMAT DETAIL CALCULATIONS (AP-42)

Month:	Ynewat	February	March	April	Нау	June	auty	August	September	October	November	December
******************************					****	* * * = = = * * * * *			***		*****	
Rim Seal tosses (lb):				251.3935	262.6579	270.0463	273.3399	255.2967	229.6753	-		
Seal Factor (th-mole/fr yr (mph)^n):		-	-	0.6000	0,8000	0.8000	6.8000	0.8000	0.8000	-	•	-
Average Hirk Speed (mph):			-	10.0	9.5	9.0	8.4	8.2	8.2	-		-
Seal-related Wind Speed Exponent:	•	-	-	1,20	1,20	1.20	1.20	1.20	1.20	-	•	•
Value of Vapor Pressure function:	*	•	•	0.0591	0.0657	0,0720	0.0792	0.0761	0.0685	-	•	•
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	-	•	-	3.100072	3.401005	3.685667	3.997641	3.865687	3.528944	-	•	•
lank Diameter (ft):	-	*	•	. 60	60	60	60	60	04	-	•	-
Vapor Molecular Weight (lb/lb-mole):	•	*		67.048695	67.076676	67.100921	67.126471	67.115976	67.087662	-	•	•
Product factor:	•	•	•	1.0000	1,0000	1,0000	1.0000	1.0000	1.0000	•	•	•
Withdraual Losses (1b):	-	-	•	16.2423	16.2423	16.2423	16.2423	16.2423	16.2423	•	16	•
Net Throughput (gal/month):	-	•		4854530	4854530	4854530	4854530	4854530	4854530	-	-	-
Shell Clingage factor (bbl/1000 sqft):	н	•	-	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	-	•	•
Average Organic Liquid Density (1b/gal):	*	*	-	0.0000	0.0000	0,0000	0.0000	0,0000	0.0000	*	•	*
Tank Dismotor (ft):	*	**	•	60	60	60	60	60	04	•	•	•
Roof Fitting Losses (1b):	*	•	٠	295,1420	310.6704	321.9596	329.2626	308.6501	277.6742	•	-	•
Value of Vapor Pressure function:	-	-	•	0.0591	0.0657	0.0720	0.0792	0.0761	0.0685	-	•	₩
Vapor Molecular Weight (lb/lb-mole):	-	•	*	67.048695	67.076676	67,100921	67.126471	67.115976	67.087662	•	•	•
Product factor;	•	*	-	1,0000	1.0000	1.0000	1,0000	1,0000	1.0000	-	•	*
Tot. Roof fitting toss Fact.(tb-mote/yr):	•	-	-	893,1371	846,0948	799.2734	743.3885	724.8350		•		•
Average Wirkl Speed (mph):	•	•	*	10.0	9.5	9.0	8.4	8.2	8.2	•	•	*
					loof fitting	Loss facto	ors					
Roof fitting/Status			Qu		(Fa (lb-mole		(ib-mole/(yr mph ^n))	M			
Vacuum Breaker (10-in. Diam. Velt)/Weighted		wation, Gask.		1	1.20	0.1	7	1,00	*******			
Unstatted Guide Pole Well/Ungasketed Stidin	ng Cover	·		1	0.00	67.00	0	0.98				
Roof teg (3-in. Diameter)/Adjustable, Double	e Deck Roc	fs		10	0.25	0.0	7	1.00				
Roof Drain (3-in, Diameter)/Open				1	0.00	7.0)	1.40				
Rim Vent (6-in. Diemeter)/Weighted Mech. Ad	ctuation, G	iask,		1	0.71	9,16	0	1.00				
Garge-Hatch/Sample Well (B-in, Diam.)/Weigh	ited Mech.	Actuation, Gas	(1	0.95	0.1	4	1.00				
Gauge-Float Well (20 in, Dism.)/Unbolted Co	over, iligas	k.		i	2.30	5.9	D	1.00				
Access Hatch (24-in. Diam.)/Holted Cover, (iasketed			1 .	0.00	0.0	0	0.00				
lotal tosses (tb):	•	*	•	562.78	589.57	608.25	618.84	580.19	523.59	•	-	*

TANKS PROGRAM 2.0 EMIGGIONS REPORT - DETAIL FORMAT TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

Identification

Usentification No.: 401 season

City: Boise
State: 10

Company: Sinctair Oil

Yor of lank: External Floation

Type of lank: External floating Roof Blank Dimensions Diameter (ft): 60 Volume/gailous): 839400 furrovers: 69

furnovers:

furnovers:

Paint Characteristics
Shelt Covalition:

Shelt Color/Shade:

Mite/Mite

Shail Cotor/Shade: Mite/Mite
Shall Paint Condition: Good
Moof Characteristics Boable Beck
Roof Type: Boable Beck
fitting Category: Typical

Tank Construction and Rim-Seal System
Construction: Neided
Primary Seat: Mechanical Shoe
Secondary Seat: Shoe-mounted

Roof fitting/Status

Vacuum Breaker (10-in. Diam. Mell/Meighted Mech. Actuallon, Gusk.

National Guide-Pole Well/Imgasketed Sliding Cover

Rouf tey (3-in. Diameter)/Adjustable, Bouble-Back Roofs

Rout feyin. (3-in. Diameter)/Adjustable, Bouble-Back Roofs

Rim Vent (6-in. Diameter)/Meighted Mech. Actuation, Gask.

Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Hech. Actuation, Gask.

Access Hatch (24-in. Diam.)/Wholted Cover, Imgask.

Heteorological Data Used in Emission Calculations: Boise, Idallo

Mixture/Component	Honth	Тепры	Liquid atures Min.	(deg f)			Pressures Hin.	(psia) Max.		Liquid Hass fract.	Mass		Basis for Vapor Pressure Calculations
Gasoline RVP 10-Sinclair HAPs	ALL	53.12	47.11	59.13	51.12	3.5386	S N/A	N/A	66.499				
8entene						0.9620	N/A			0.0188	0.0056	78.11	Option 2: A=6.9050, B=1211.033, E=220.790
£ thy i benzene						0.0851	H/A	N/A		0.0207			Option 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n)						1.5952	N/A	N/A	,	0.0181			Option 2: A=6.8760, B=1171.170, C=224.410
l soct ane						0.4472	2 H/A	H/A	,	0.0151	0.0021	114.22	Option 1
Naphthalene C-19, H-8						0.0017	7 H/A	N/A	i	0.0013	0.0000	128,16	Option 2: A=7.1463, B=1831.571, C=211.821
lotume						0.2655	N/A	H/A	,				Option 2: A=6.9540, 8=1344.800, C=219.480
Xylene (-m)						0.1016	B H/A	N/A	i				Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-o)						0.0553	N/A	N/A					Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.0763	3 N/A	H/A		0.0448	0.0011	106.14	Option 2: A=7.0206, B=1474.403, C=217.773
Gasoline (RVP 10)						4.4434	L M/A	H/A		0.7043	0.9717	00.33	Ontion A: RVP=10.00. ASIN Signe=2.5

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT DETAIL CALCULATIONS (AP-42)

Annual Emission Calculations

8000 8.8 1.20 0687
1.20
-
0687
8575
60
8645
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5636
4360
.0015
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66
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0687
8645
.0000
1803.
· mont

		Roof fitting toss	Roof fitting toss factors					
Roof Fitting/Status	Quant i ty	Kfu (lirmote/yr)	Kfb (lb-ux	ste/(yr mph^n)) — m				
Vacuum Breaker (10-in. Diam. Well)/Weighted Mech. Actuation, Gask.	1	1.20	0.17	1.00				
instituted fields-fole Well/Ingastated Sitding Cover	i	0.00	67.60	0.98				
Roof Leg (3-in. Diameter)/Adjustable, Double-Deck Roofs	10	0.25	0.07	1.00				
Roof Drain (3-in. Piameter)/Open	1	0,00	7.00	1.40				
Rim Vent (6-in. Diameter)/Weighted Hech. Actuation, Gask.	1	0.71	0.10	1.00				
Gauge-Natch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask	1	0.95	0.14	1,00				
Gauge Float Holt (20-in, Dism.)/Unknotted Cover, Ungask.	1	2.30	5.90	1.00				
Access Hatch (24-in. Diam.)/Holted Cover, Gasketed	1	0,00	0.00	0.00				

lotal tosses (lb):

6732.50

TANKS PROGRAM 2,0 EMISSIONS REPORT - DETAIL FORMAT INDIVIDUAL TANK EMISSION TOTALS

Annual Emissions Report

	Losses (tbs	l.):				
	lotai			lotal		
Liquid Contents	Withdrawat	Roof-fitting	Rim Seal	Standing	Total	
Gasoline RVP 10-Sinclair HAPs	181.56	3568.12	2982.82	6550.93	6732.50	
Belizena	3.41	20.04	16.75	36.79	40,20	
Ethylbenzene	3.76	1.95	1.63	3.58	7.34	
Hexane (-n)	3.29	31.99	26.74	58.73	62.01	
I sooc t ane	2.74	7.48	6.25	13.74	16.48	
Haphthatene C-10, H-8	0.24	0.00	0,00	0,00	0.24	
) o l uene	17.65	28.59	23.90	52.50	70.14	
Xyteise (-m)	8.13	5.05	4.23	9.28	17.41	
Xylene (-a)	6.34	2.14	1.79	3.92	10.26	
Xylene ('p) "Paraxylene"	8.13	3.79	3.17	6.96	15.09	
Gasotina (RVP 10)	127.88	3467.08	2898.36	6365.44	6493.31	
Total:	181.56	3568, 12	2982.82	6550.93	6732.50	

01/24/96 PAGE 1

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

tdent if ication	
tukut if ication No.:	401 seeson
City;	Boise
State:	10
Сопрасу:	Sinclair Oil
Type of Tank:	External floating Roof
Tank Dimensions	
Diameter (f1):	60
Volume(galfons):	839400
ţrii.inani.p ;	49
Paint Characteristics	
Shell Condition:	Light Rust
Shell Color/Shade:	White/Mhite
Shell Paint Condition:	Good
Roof Characteristics	•
Ruof lype:	Double Deck
fitting Entegory:	Typical
Tank Construction and Rim	Seal System
Construction:	Velded
Primary Sual:	Mechanical Shoe
Secondary Seat:	Shoe mounted

Roof fitting/Status	Quant i ty
Vacuum Breaker (10-in. Diam. Woll)/Weighted Mech. Actuation, Gask.	1
this lotted Guide-Pole Hell/thigaskeled Sliding Cover	1
Roof Leg (3-in. Diameter)/Adjustable, Double-Deck Roofs	10
Roof Brain (3-in, Disseter)/Open	1
Rim Vent (& in. Diameter)/Weighted Mech. Actuation, Gask.	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Hech. Actuation, Gask	1
Gauge-Float Well (20-in, Diam.)/Unbolted Cover, Ungask.	1
Access Hotch (24 in. Diam.)/Bolted Cover, Gasketed	ì

Mercurological Data Used in Emission Calculations: Boise, Idaho

Hixture/Component	Month		atures	Surf. (deg f) Hax.	Liquid Bulk Temp. (deg f)	Vapor I Avg.	Pressures Min.	(psia) Nax.	Vapor Mul. Veight	liquid Hass fract.	Mass	Hol. Veight	Basis for Vapor Pressure Calculations
Gasoline RVP 13.5-Sinclair HAP	f£a	45 64	41 60	49.59	51 12	4.3253	11.44	44.4	44 850				
\$e1)2 e1)e	,	72.44	71.07	77.57	31.12	0.7734	N/A		61.859	A 6100		****	
Ethylbenzene						0.0647	W/A			0.0105	0,0038	78.11	Option 2: A=6.9050, 8=1211.033, C=220.790
Gasoline (RVP 13.5)						5.3941	W/A				0.0003		Option 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n)						1.3001	N/A			0.7843	0.9814	01.3U	Option 4: RVP=13.50, ASTH Stope=2.5
t soct ana						9.3111	A/A A/A			0.0161	0.0061	80.11	Option 2: A=6.8760, B=1171.170, C=224.410
Naphthalene C-10, H-8						0.0012		N/A		1010.0	0.0012	114.22	Option 1
Toluene						0.2078	N/A	H/A		0.0013	0.0000	128.16	Option 2: A=7.1463, B=1831.571, C=211.821
Xylene (-m)						0.0777	N/A			0.09/2	0.0052	92.15	Option 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)						0.0417	N/A			0.0448			Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"						0.0581				0.0349	0.0004	106.17	Option 2: A=6.9980, B=1474.679, C=213.690
• • • • • • • • • • • • • • • • • • • •						W.W.301	H/A	¥/A		0.0448	0.0007	104.14	Option 2: A=7.0206, B=1474.483, C=217.773
Gasoline RVP 13.5-Sinclair HAP	MAR	48.57	43,26	53.89	51.12	4.5869	N/A	14 / A	61.873				
Banzene				•		0.8432	N/A	-		0.0188	arna a	78 11	Antino 3. 4-4 AAGA
Ethylbenzene						0.0721	H/A	,		0.0207	0.0004	10.11	Option 2: A=6.9050, B=1211.033, C=220.790
Gasoline (RVP 13.5)						5.7178	H/A				A DRAR	41 SO	Option 2: A=6.9750, B=1424.255, C=213.210 Option 4: RVP=13.50, ASTM Slope=2.5
Hexane (-n)						1.4099	H/A	N/A		0.0181	0.7000	86 17	Oction 3: And 9340 Delt34 130 Co324 (10
isoactane						0.3622	N/A			0.0151	0.0002	11/ 22	Option 2: A=6.8760, B=1171.170, C=224.410 Option 1
Haphthalena C-10, H-8						0.0014	N/A	***		0.0013	0.0000	324.56	Oution 7: 4:7 1/42 P-1971 571 4:214 A71
Totuene						0.2290	N/A			0.0972	0.0000	02 11	Option 2: A=7.1463, B=1831.571, C=211.821
Xylumu (-m)						0.0865	N/A			0.0448	0.00,4	104 17	Option 2: A=6.9540, B=1344.808, C=219.480
Xylene (-a)						0.0466	N/A			0.0149	0.0007	100.17	Option 2: A=7.0090, B=1426.266, C=215.110
XAIRUR (-h) "betaxAfene»						0.0648	H/A			0.0448	0.0007	100,17	Option 2: A=6.9980, B=1474.679, C=213.690
Gasotine RVP 13.5-Sinclair HAP	nee	17 27		44.61	**		•			W. 044B	0.0007	tuo. 10	Option 2: A=7.0206, B=1474.403, C=217.773
Buntana un 13.3 dimenti nul	ME4.	43.21	4U.	46.44	21.12	4.1230	**, ***		61.847				
Ethylbenzene						0.7206	N/A	H/A		0.0188	0.0037	78.11	Option 2: A=6.9050, 0=1211.053, C=220.790
Gasoline (RVP 13.5)						0.0591	A/K	H/A		0.0207	0.0003	106.17	Option 2: A=6.9750, B=1424,255, C=213.210
Hexane (-n)						5.1437	H/A	4.7		0.7043	0.9820	61.50	Option 4: RVP=13.50, ASIM Slope=2.5
Isooctana						1.2167	H/A	N/A		0.0181	0.0060	86.17	Option 2: A=6.8760, B=1171.170, C=224.410
Naphthatene C-10, H-8						0.2699	H/A	N/A		0.0151	0,0011	114.22	Option 1
lotuene cit, no						0.0011	N/A	N/A		0.0013	0.0000	128.16	Option 2: A=7.1463, 8=1831.571, C=211.821
XA para (-m)				,		0.1919	H/A	H/A		0.0972	0.0051	92.13	Option 2: A=4.9540, B=1344.800, C=219.480
Xylene (-o)						0.0712	H/A	H/A		0.0448	0.0009	106.17	Option 2: A=7.0090, B=1426.266, C=215.110
, - ,						0.0380	H/A	N/A		0.0349	0.0004	106.17	Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.0532	N/A	H/A		0.0448	0.0006	106.16	Option 2: A=7.0206, B=1474.403, C=217.773

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EMISSIONS REPORT - DETAIL FORMAT DETAIL CALCULATIONS (AP-42)

Rim Suul Losses (1b): Seal factor (1b-mole/ft yr (mph)^n): Average blind Speed (mph): Seal-related blind Speed Exponent: Value of Vapor Pressure function: Vapor Pressure at Daily Average Liquid Stat face Leasure at Daily Average Liquid		1115			A92	71#JG	A that	August	achtenos.			
A Sual Losses (lb): Noring Factor (ltr-moleff yr (mgh)^n): Noringo Wind Speed (mgh): Seal Tetaled Wind Speed Exponent: Aluo of Vapor Pressure Function: And of Perssure at Daily Average Liquid Suapor Perssure (ms. b):		,										
ical factor (th-mole/ft yr (myh)^h); Verage bind Speed (myh); Sal-iclated bind Speed Exponent; Jalus of Vapor Fressura Function; Angor Fressura at Daity Average Liquid Suptre I custific (isti);		300.3059	365.7037	,	•	•	,		,			24.7.32
Verrage Wind Speed (mpt): Seat retated Wind Speed Exponent: Jalus of Vapor Pressure Function: Apor Pressure at Daily Average Liquid		0.8000	0.0000				•		•			9.60
cal retaicd Wind Speed Expansion; also of Vapor Pressure Functions apor Pressure at Daily Average Liquid		0.9	10.0	,	•	,	•	•	,	1		_
Jalua of Vapor Pressura Functions Apor Prussure at Daily Average Liquid		1.20	1.20	,	•		•	,	•	•		_
capor Prussing at Daily Average Liquid		0.0869	0.0932					,	•	,	•	0,08
1864 J. J.C. C. B. 1988 Dect. (B. 1864 S. 1888												
		4.325251	668985.7			,	•			•	,	4.1229
desk Dingeler (ft.):		09	99	•					,			
Value Malecular Melular (1977):	,		201378 14	,				,	s			61.8468
Pushet factor:			L. COMM		t				1			₹.
			2									76 73
telefort and the country (first		10.2525	10.2423				,			•		2
Het ibroughtat (gal/axath):		4854530	4854538	•		,		,	٠	•	,	48545
Shell Clinyage factor (Mil/1000 sqft):		0.0015	0.0015			*		•				8.
Average Grante Light Density (16/gul):		0.0000	0.000	,			•	,	•	•	•	<u>.</u>
lash Diameter (11):		93	09	,		,	•		•		,	
Roof Firshmetasses (In):		158 0351	877), 667			f			•			302.80
Martin of Martin Department Englished	1	0700 0	C 100 0	ı		1	•	•	•			0 0A
	,	V.0007	20000	,	•	,	,	,				
Vajvor Motecular Netyht (16/16-gole):	,	61.858752	61.873194	+		4		•			•	00-07-10
Product factor:	+	1.0000	1.0000	•	•		•		Ŧ			3.
lot. Roof fitting toss fact.(ib.mole/yf):		799.2734	895.1371	•					•			715.57
Average Wird Speed (aph):	•	9.6	10.0						,	•		
				œ.	Acof Fitting Loss Factors	oss factors						
Roof Fitting/Status			Organi ity		KFa (ilu-mole/yr)		Kfb ((b-mote/(yr myh'n))	whten)	a			
Vactions Steaker (10-in, Diam, Well)/Heighted Mech. Actualion. Gask.	sch. Actu	tuation Gas	; ; ; ; ; ; ; ;	6 6 6 7	1.20	0.17		1.00				
Unstotted Guide-Pole Well/Ungasketed Sliding Cover	Cover	•			0.00	90.79		96.0				
Roof 1 ea (3 in. Diameter) Adjustable Bouble Deck Roofs	beck Roof	' 77	. 9		0.25	0.07		96				
Roaf Brain (3-in, Diameter) (Spen		ı	-		00.0	7.00		97.1				
Him Vant (6: 18. Staumter) / Weighted Mech. Actuation Sask	ation Sa	,			6.21	01.0	,	00				
Garge Berch Salede Sell (8-in, Bine) Meight of Meth. Actuation Gast	1 Mech. A	ctuation (45.45		3	71 0		100				
Garge-Float Well (20-ts. Bloss)/Jacksled Cover thousast.	r. Unwask				2.30	5.90		9				
Access Hatch (24-in, Diam.)/Bolted Cover, Gasketed	keted				0.00	0.00		0.00				

TANKS PROGRAM 2,0 EMISSIONS REPORT - DETAIL FORMAT INDIVIDUAL TANK EMISSION TOTALS

Months in Report: february, March, December

	Losses (lb:	ì.):			
	Total			ĭotał	
Liquid Contents	Withdrawal	Roof-fitting	Rim-Seal	Standing	Total
Gasoline RVP 13.5-Sinclair HAP	48.73	1090,18	916.00	2006.19	2054.91
Benzene	0.92	4.11	3.46	7.57	8.49
Ethylbenzene	1.01	0.38	0.32	0.70	1.71
Gasoline (RVP 13.5)	34.32	1069.83	898.89	1968.72	2003.04
Hexane (·n)	0.88	6.65	5.59	12.24	13.13
Isooctane	0.74	1.34	1.13	2.47	3.20
Naphthalene C-10, N-8	0.06	0.00	0.00	0.00	0.06
fatuene	4.74	5.73	4.81	10.54	15.28
Xylene (-m)	2.18	0.99	0.81	1.82	4.00
Xylene (-o)	1.70	0.41	0.35	0.76	2.46
Xylene (-p) "Paraxylene"	2.18	0.74	\$4.0	1.36	3.54
Iotai:	48.73	1090 18	916.00	2004. 19	2054 . 91

01/24/96 PAGE 1

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

Quantity

10

Identification	
Identification No.;	401 season
£İty;	Boise
State:	ID .
Companyt	Sinclair Oil
Type of Lank:	Exturnal flusting Roof
fank Dimensions	
Diameter (f1):	60
Voltage (gallens):	839400
jurnovers:	69
Paint Characteristics	
Shell Condition:	tight Rust
Shell Color/Shade:	White/Maite
Shell Paint Condition:	Guod
Roof Characteristics	
Roof Type:	Double Beck
fitting Category:	Typical
Tank Construction and Rim-	Seal System
Construction:	Wel ded
Primary Scal:	Hechanical Shoe
Secondary Seat:	Shoe-mounted
Roof fitting/Status	
	m. Weit)/Weighted Hech. Actuation, Gask.
Unstatted Guide-Pale Well	
	Adjustable, Double-Deck Roofs

Roof Orain (3-in. Diameter)/Open

Meteorological Data Used in Emission Calculations: Boise, Idaho

Gauge-Batch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask

Rim Vent (6-in. Diameter)/Weighted Hech. Actuation, Gask.

Gauge-float Well (20-in, Diam.)/Unbolted Cover, Ungask. Access Batch (24-in, Diam.)/Bolted Cover, Gasketed

Mixture/Component Month	Baily Liquid Surf. Temperatures (deg f) Avg. Hin. Hax.		Vapor Liquid Vapor sia) Hol. Hass Hass x. Weight Fract. Fract,	Hol. Basis for Vapor Pressure Weight Calculations
Gasoline RVP 11.5-Sinclair HAP NOV Benzene Ethylbenzene Hexane (-n) Isooctane Maphihalene C-10, H-8 Toluene Nylene (-m) Kylene (-o)	46.96 42.88 51.04	0.8042 H/A 0.0679 H/A 1.3486 H/A 0.3341 H/A 0.0013 H/A 0.2171 H/A 0.0816 H/A 0.0438 H/A	N/A 0.0207 0.0004 N/A 0.0181 0.0074 N/A 0.0151 0.0015 N/A 0.0013 0.0000 N/A 0.0972 0.0064 N/A 0.0448 0.0011 N/A 0.0349 0.0005	128.16 Option 2: A=7.1463, B=1831.571, C=211.821 92.13 Option 2: A=6.9540, B=1344.800, C=219.480 106.17 Option 2: A=7.0090, B=1426.266, C=215.110 106.17 Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Peraxylene" Gasoline (RVP 11.5)		0.0610 H/A 4.6018 H/A	N/A 0.0448 0.0008 N/A 0.7043 0.9774	106.16 Option 2: A=7.0206, B=1474.403, C=217.773 64.00 Option 4: RVP=11.50, ASTM Slope=2.5

TANKE PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT DETAIL CALCULATIONS (AP-42)

Honthi	Jaixiary	february	March	Apri	l Hay	anut.	July	August	September	October	November	Decembe
Rim Seal Losses (1b):							_				237.5952	
Seal factor (lb-mole/ft yr (aph)^n):	_		_		-			-			0.8000	
Average Wind Speed (ach):			-	_	-		*	_	-		8.4	-
Seal-related Wink Speed Exponent:	-		-		-	-		*	-		1.20	•
Value of Vapor Pressure Function:			-	-	-	•	•	-		-	0.0717	-
Vapor Pressure at Daily Average Liquid												
Surface lemperature (psia):	-	-	-	-	- .	н	-	•	•	-	3.671694	-
lank Dimmeter (ft):	•	#	**			•	-	-	•		60	•
Vapor Motecular Weight (lb/lb-mote):	-	*		-	-	-	•	*	-		64.415283	-
Product factor:	•	•	~	#	*	•	•	•	-		1.0000	-
Withdrawal tosses (lb):	•		-	-	_		**	_	*	-	16.2423	
Net Throughput (gal/month):	-	•		*	•	-	•		-	•	4854530	•
Shell Clingage factor (bbl/1000 sqft):	-	-	•	-				-	•	-	0.0015	-
Average Organic Liquid Density (1b/gal):	•	*		•			-	-	•	•	0.0000	•
Tank Diameter (ft):	•	•	*	•	•	•	-	-	•	•	60	-
Roof fitting tosses (1b):	-	-			-	-			•	•	286.2049	*
Value of Vapor Pressure Function:	*		-	-	•		-	•	•	•	0.0717	-
Vapor Holecular Weight (lb/lb-mole):	•	-	-	•	•	•	-	*	-	-	64.415283	-
Product Factor:	*	-	-	-		-	-	+	-	•	1.0000	-
lot. Rouf fitting loss fact.(lb-mate/yr):	*	*	-	•	4		-	-	•	-	743.3885	-
Average Wind Speed (mph):	•	-	•	•	-	-	•	•	-	•	8.4	
Roof fitting/Status			Quar	ntity	Roof fitting Kfa (lb-moto		rs (lb-mole/(γ	c sph^n))	<u>n</u>			
Vacuum Breaker (10-in. Diam. Well)/Weighted	d Hech. Act	uation fask			1.20	0.17		1.00				
Unstatted Guide-Pole Well/Ungasketed Slidin				' 	0.00	67.00		0.98			•	
Roof Leg (3-in. Diameter)/Adjustable, Doub		fs	10	<u>'</u>	0.25	0.07		1.00				
Roof Brain (3-in. Diameter)/Open		•••			0.00	7.00		1.40				
Rim Vent (6-in. Dismeter)/Weighted Mach. Ad	ctuation. G	ask.	ì		0.71	0.10		1.00				
Gauge-Hatch/Sample Wall (8-in. Diam.)/Weigh			azik Î	i I	0.95	0.14		1.00				
Gaige Float Well (20-in, Diam.)/Whichted Co			i	1	2.30	5.90		1.00				
Access Hatch (24-in. Diam.)/Bolted Cover, (Gasketed		i	l	0.00	0.00		0.00				
Total Losses (lb):	. '		-	-	•	•	-	-	•	*	540.04	

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT INDIVIDUAL TANK EMISSION TOTALS

Months in Report: Hovember

	tosses (the	i.);			
	Total			Total	
Liquid Contents	Vi thdrauat	Roof-Fitting	Rim-Seat	\$tanding	Total
Gasoline RVP 11.5-Sinclair MAP	16.24	286.20	237.60	523.80	540.04
Benrene	0.31	1.30	1.08	2.39	2.69
£thylbenzene	0.34	0.12	0.10	0.22	0.56
Hexane (-n)	0.29	2.11	1.75	3.86	4.15
t seect ane	0.25	0.44	0.36	0.80	1.04
Naphthalene C-10, H-8	0.02	0.00	0.00	0.00	0.02
Totuene	1,58	1.82	1.51	3.33	4.91
Xylene (-m)	0.73	0.32	0.26	0.58	1.31
Xylene (-o)	0.57	0.13	0.11	0.24	0.81
Xylene (-p) "Paraxylene"	0.73	0.24	0.20	0.43	1.16
Gasoline (RVP 11.5)	11.44	279.73	232.22	511.95	523.39
lotal:	16.24	286. 20	237.60	523.80	540.04

TANKE PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

taracter of the state	
Identification No.:	401 season
£ity:	Boise
State:	ID
Company:	Sinclair Oil
Type of Tank:	External floating Roof
Tank Dimensions	
Dimmeter (#1):	40
Volume(galtons):	839400
lurmovers:	۸9

Light Rust

Good

White/White

Roof Characteristics

Shell Condition:

Shell Cotor/Shade:

Shell Faint Condition:

Identification

Roof Type: Double Deck Fitting Category: Typical

Tank Construction and Rim-Seat System
Construction: Weided

Primary Seal: Hechanical Shoe Secondary Seal: Shoe-mounted

Roof fitting/Status	Quantity
Vacuum Breaker (10-in. Diam. Well)/Weighted Hech. Actuation, Gask.	1
Unstatted Guide-Pole Well/Ungasketed Stiding Cover	1
Roof teg (3-in. Diameter)/Adjustable, Double-Deck Roofs	10
Roof Drain (3-in. Diameter)/Open	1
Rim Vant (6-in. Diameter)/Weighted Hech. Actuation, Gask.	i
Gauge Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask	i
Gauge float Well (20 in. Diam.)/Unbolted Cover, Ungask.	i
Access Batch (24-in. Diam.)/Bolted Cover, Gasketed	ì

Meteorological Data Used in Emission Calculations: Boise, Idaho

Mixture/Component	Month	•	atures	Surf. (deg f) Max.	Liquid Bulk Temp. (deg f)	•	Pressures Min.	(psia) Max.	Vepor Mol. Velght	Liquid Mass fract.	Mass	Hol. Weight	Basis for Vapor Pressure Calculations
Gasotina RVP 15-Sinctair HAPs	#AL	42 41	30 23	45.60	51 12	4.5876	N/A	11/A	61.908				
Sentene	42174	46.71	47.64	42.00	****	0.7021		H/A		0.0188	0.0032	78.11	Option 2: A=6.9050, B=1211.033, C=220.790
Ethylhenrene						0.0575		H/A					Option 2: A=6.9750, H=1424.255, C=213.210
Hexane (-n)						1.1875		H/A		0.0181			Option 2: A=6.8760, B=1171.170, C=224.410
isoctane						0.2550	N/A	N/A		0.0151	0.0009	114.22	Option 1
Naphthalona C-10, 11-8						0.0010	H/A	H/A		0.0015	0.0000	128, 14	Option 2: A=7.1463, 8=1831.571, C=211.821
i o i tiene						0.1864	H/A	H/A		0.0972	0.0044	92.13	Option 2: A=6.9540, B=1344.800, C=219.480
Xyiene (·m)						0.0690) H/A	H/A	,	0.0448	0.0008	106.17	/ Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-o)						0.0366	N/A	N/A		0.0349	0.0003	106.17	7 Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.0515	N/A	N/A		0.0448	0.0004	106.16	S Option 2: A=7.0206, B=1474.403, C=217.773
Basoline (RVP 15)						5 717/	12/4	13 / A		0 7043	0.0842	AG 76	Dotton 4: RVP=15.00. ASTM Stope=2.5

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT DETAIL CALCULATIONS (AP-42)

Month:	January	february	March	April	Hay	jirio	july	August	September	October	November	December
K b = = = = * * * * * * * * * * * * * * *										*******		******
Rim Seat Louses (lb);	275 . 9286		•		· •	•	•	_	-	-		•
Sual factor (th-mole/ft yr (mph)*n):	0.8000	•	-	•	•	-	-	-	-	•	•	*
Average Wiski Speed (myh):	8.0	-	-			•	-	-		•		*
Seat related Wind Speed Exponent:	1,20		-	•		•	-		•	*		•
Value of Vapor Pressure function:	0.0932	*		-	*		•		•	-	•	•
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	4.587563	•	-	•	•	•	-	•	-	•	-	
lank Diameter (ft):	66	•	-	•	•	-	•	-	•	-	•	+
Vapor Holecular Weight (Ub/Ib-mola):	61.007919	-		•	-	-	-	-	•		-	-
Product factor:	1,0000	•	-	-	-	-	•	•	•	•	•	•
Withdrawal losses (1b):	44 2423											
	16.2423 4854530	•	•	₩	*		•	•	•	•	•	
Net Throughput (gal/month): Shell Clingage factor (bbl/1000 sqft):	0.0015	н		•	н	-	•	•		•	•	-
Average Organic Liquid Density (th/gal):	0.0000	-				•		•	-	-	-	
Tank Diameter (ft):	0.0000 03	•						•	-		_	
Tark Plancia: (11).	CG CG	,	•	•	•	•	•	-	•	,	-	-
Roof fitting losses (lb):	334.8489	•		-	-	+		•	_		-	•
Value of Vapor Pressure function:	0.0932		-	-	+	-	•	-		•	•	-
Vapor Molecular Haight (1b/lb-mole);	61.007919	•	•	-	н	-	•	-	•		-	-
Product factor:	1.0000	•	-		-	•	•			-	-	-
Tot. Roof Fitting Loss Fact.(lb-mole/yr);	706.3198	•	-	•		-	-		-	•	-	-
Average Wind Speed (mph):	8.0	•	*	-	•	•	-	•	-	-	•	-
						_						
Roof Fitting/Status			Quant i		Roof fitting toss Kfa (Ib-mote/yr)		mote/(yr	((n^ekpn	(L)			
Vactom Breaker (10-in, Dina, Well)/Velühte	ad Mark Ass				4 3a	~ * * * * * * * * * * * * * * * * * * *		4 00	*****			
thistotted Guide Pole Well/Migasketed Slid	eu nech, sch	······································			1.20	0.17		1.00				
Roof Lag (3-in. Dissuter)/Adjustable, Dou	itim rase per	4.5	1		0.00	67.00		0.98				
Roof brain (3-in. Diameter)/Open	rie.herr kon	18	10		0.25 0.00	0.07		1.00				
Rim Vent (6-in. Diameter)/Weighted Mech.	Actuation 6	a.e.b	!		0,71	7,60 ·		1.40 1.00				
Gauge Hatch/Sample Well (8-in. Diam.)/Wel	anted Mech	Actuation Good	3 1		0.95	0.14		1.00				
Garge-Float Wall (20-In. Diam.)/Hubotled	Cover throse	reconstant, mark	•		2.30	5.90		1.00				
Access Hatch (24-in. Diam.)/Bolted Cover,	Gaskatad	•			0.00	0.00		1,100 . 0.00				
·····································			• •		0.00	0.00		ម.ប្				
fotal touses (tb):	627.02		-	-	-	~	•	-		*	-	•

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT

Months in Report: January

	losses (the	3.);		Total	
Liquid Contents	Withdraval	Roof-fitting	Rim-Seat	Standing	Total
Gasoline RVP 15-Sinclair HAPs	16.24	334.85	275.93	610.78	50.75
Benzene	0.31	1.08	0.89	1.97	2.28
Ethylbenzene	0.34	0.10	Ø.08	0.18	0.51
Hexane (-n)	0.29	1.76	1.45	3.21	3.50
1 sooctane	0.25	0.32	0.26	0.57	0.82
Naphthalene C-10, H-8	0.02	0.00	0.00	0.00	0.02
Totuene	1.58	1.48	1.22	2.71	4.28
Xylune (-m)	0.73	0.25	0.21	0.46	1.19
Xylene (-o)	0.57	0.11	0.09	0.19	0.76
Xytene (p) "Paraxytene"	0.73	0,19	0.16	0.34	1.07
Gasoline (RVP 15)	11.44	329.57	271.58	601.14	612.58
Totals	16.24	334.85	275.93	610.78	627.02

Title V Engineer:

MG

Company Name: Location: Sinctair Oil Corp. Bolse, Idaho

Datu Greated:

January 4, 1996

Today's Date:

01/25/96

Calculation of Loading Rack Emissions

THIS SPREADSHEET IS DESIGNED TO ESTIMATE EMISSIONS BY MONTH

ASSUMPTIONS

- 1. TANKS2.0 provides the morthly average true vapor pressure of the gasoline product AND the molar fraction of HAP constituents in the vapor phase of the gasoline product.
- 2. RVP 11 gasoline with Sinclair's HAPs used for all calculations.

Reference:

AP-42, Sect. 5.2

only january is changed below

TOTAL HIAPS ONLY

JANUARY	JANUARY	JANUARY		
LL # 12.46 SPM/T	where Lr. = loading loss, lb/1000 gal		, *	see Charl
	S = saturation factor, dimension	dess, 1.0 S	= see	`
	P = true vapor pressure, psta	P	#	3.1679
	M = molecular weight of vapor,	tb/lb-mole M	₩ .	65.103
	T = absokile temperature, *R	ĭ	₩ :	511.1

JAPRIARY Gasoline Throughput, gallons per month, =

19438.3 E*3 gallons

IIAPs	Vapor Mass	Li	Emissions
Compounds	Frestien	((1) 19 + 92()	(Terementh
Benzena	0.0046	0.0231	0 2
Ethythenzene	0 0004	0.0020	0.03
l texane	0.0075	0.0377	0.37
Naphihalene	0 0000	3 00E-06	2.91E-0
Tokiene	0.0063	0.0317	0.3
Trimelhylpentane (2,2,4)	0.0013	0.0065	0.00
Xylene-m	0.0011	0.0055	0.0
Xylene-o	0 0004	0.0020	0.0
Xylena-p	0 0008	0.0040	0.0
Gasoline (RVP-11)	0 9775	4.9146	47.7
TOTAL			48.8

or all months...

RUARY	FEBRUAR'	1	
oss, ltv/1000 gal		k.₹	see Chart
n factor, dimensionless		S ∓ şee	498 2 1465 1
y pressure, psia		्र कुरूर 9 क	3.892
ir weight of vapor, lib/it:		yl ≉	65.122
temperature, *R		" "	611.1
tungunutus, 14		•	Wii I
		:-	19438.3 E^3 gallons
Li Emissions	-1		
19 : gall (Tenhnent)			,
0 0 290			
0 0025 0 0	· 1		
0.0476 0.4			
3 68E-06 3.58E-0			
0.0408 0.4	-		
0 0093 0 0			
0.0068 0.0			
0.0031 0 (
0.0049 0.0	· · · ·		
6 0341 58 6	55		
60.0	J 05		
1.4	10		
	MARCI	l	
oss, lb/1000 gal			ean Chad
n factor, dimensionless		Lt≓ S≖see	see Charl
x pressure, psia	•	9 = ### β =	2 6044
n meithy of Asbot' IPNF v Messens' bain			3.6011
		M =	65 138
temperajure, *R		T =	511.1
			19438.3 E^3 gallons
· · · · · · · · · · · · · · · · · · ·			· satediist m a Busan
Li. Emissions	· •		
10 road) (Tenknomi	1) [
0 0280 0			
0 0029 0 6)3 		
0.0446 0 4			
3.41E-06 3.31E-4	· •		
0 0 4 4 6			
0.0097 04			
0.0069 0.0			
0.0029 0.0			
	1		•
0.005) 0.0 5.5799 54.2			
	_]		
	1.5		
,	55.0	55.64 1.41	55.64

APRIL	APRIL.		API	RIL	
Li = 12.46 SPM/T	where Li = loadi	ng loss, Ib/100	00 gai	ļ⊾#	see Chart
	S = salur	ation factor, d	imensionless, 1.0	S = sea	
	P = true v	rapor pressur	a, psla	₽≖	3.8986
	M = mole	cular weight o	l vapor, th/th-mole	М =	65,138
	T = absol	ule lemperatu	и», ⁴ R	T =	511.1
Gasolina Throughpul, ga	ilions per month =			•	19438.3 E^3 gallons
APRIL.					
IIAP:	Mole	L.L	Emissions		
Compounds	Fraction	(Harris and Mall)	(Terrangual)		
Benzene	0 0050	0.0310	0.30		
Ethylbenzene	0 0005	0.0031	0.03		
Haxane	0.0080	0 0495	0 48		•
Naphihalene	0.0000	3 69E-06	3.596-05		
Tokiena	0 0072	0 0446	0 43		
Trimethylpentane (2,2,4)	0.0019	00118	011		•
Xylene-m	0.0013	0.0080	0.08		
Xylune o	0 0005	0 0031	0 03		
Xylene-p	0.0009	0 0056	0.05		•
Gasoline (RVP-10)	0 9747	6 0341	58.65		
TOTAL			60.17		
TOTAL-HAPS ONLY			1.52		
MAY	MAY		à.	MAY	
Li = 12 46 SPM/T	where to a loadi	na loss. lb/100		14.8	see Charl
	S = salu	allen factor d	imensionless, 1.0	S ∓ see	
	P = line v	igini ixeeeni	o osia	Pa	4 2652
	M = mole	cular weight o	il vapor, lb/lb-mole		65.185
	T = absol	ule lemperalu	ue, 'R	T =	511.1
Gasoline Throughpul, ga	llons per month =				19438.3 E*3 gallons
MAY			ي د وجادمدندي د		i i i ani di en a America
HAPs	Mola	I.	Emissions		
<u>Compounds</u> Benzene	fr∌chen 0 0052	1 19 1 1941 1 0 0 3 5 2	(Tervinenth) 0.34		
Ethylbenzene	0 0005	0.0034	0.03		
Hexano	0 0083	0.0563	0.55		
Naphihalene	0 0000	4 04E-06	3.93£-05		
Tokume	0 0075	0.0508	0.49		
Trimelitylpentane (2,2,4)	0.0020	0.0136	0.13		
Xylena-m	0.0014	0 0095	0 09		
Xylene-o	0.0006	0.0041	0.04		
Xylene-p	0.0010	0.0068	0.07		
Gasoline (RVP-11)	0 9735	6.5981	64.13		
TOTAL					
TOTAL-HAPS ONLY			65 87		
			1.75		

	JUNE		JUNE		
LL = 12.46 SPM/T	where Li = load	ling loss, lb/10	000 gal	lı#	see Chart
			limensionless, 1.0	S = see	English.
		vapor pressur		₽÷	4.6111
	M = mot	ecular weight	of vapor, Ib/lb mole	M≅	65,206
		olulo temperati		T =	511.1
Gasoline Throughput, gai	llans are month	22		. "	10430 3 E43 applicant
JUNE	main bar mermi				19438.3 E*3 gallons
HAPs	Mole	Lı	Emissions		
Compounds	Fraction	(fix) to a gath			
Benzeno	0.0054	0.0396	0.38		
Ethylbenzene	0.0006	0 0044			
1 lexane	0.0085	0.0623	061		
Naphihalone	0.000	4.37E-06			
Tukiene	0.0079	0.0579			
i rknethylpentane (2,2,4)	0 0022	0.0161	0.16		
Xylunu-m	0.0014	0 0103			
Xylene-o	0 0006	0 0044	0.04		
Xylene-p	0 0010	0.0073			
Gasoline (RVP-11)	0 9735	7.1365	69.35		
TOTAL	······································	······································	71.32		
TOTAL-HAPS ONLY			1.97		
JULY	9 H V				
301. 1 Li ≈ 12.46 SPM/T	JULY		JULY	_	
11 - 12.40 SPM/	where the toac	ling loss, Av) (OXI GAI	11.7	see Chart
	5 = \$411	nation factor, c	limensionless, 1.0	S # see	1
			e asia	P =	10003
	P = true				4 9692
	loın ≖ M	ecular weight	of vapor, Ib/Ib-mole	M =	65.229
	loın ≖ M		of vapor, Ib/Ib-mole		1 y 1 y 1
Gasoline Throughpul, ga	loin = M scila = T	ecular weight dulu temperat	of vapor, Ib/Ib-mole	M =	65.229 511.1
Gasoline Throughpul, ga JULY HAPs	ton = M isda = T thron per month	ecular weight siniu tumperali	of vapor, libits mote me, *R	M =	65.229 511.1
HAPs	M = noi i = abso tions per month Mole	ecular weight dulu (umpurali =	of vapor, lb/lb-mole me, *R Emissions	M =	65.229 511.1
JULY HAPs Compounds	M = mol T = abso llons per month Mole Fracilion	ecular weight datu (conjocali = (0)/19 1 gal)	of vapor, lb/lb-mole me, *R Emissions (*20/02011)	M =	65.229 511.1
HAPs Compounds Beizene	M = mol T = abso Hons per month Mole Fraction 0.0054	ecular weight shilo temperal = 1.1 (M/19/1921) 0 0/128	of vapor, lib/lib mole nie, *R Emissions (1919/11911)	M =	65.229 511.1
HAPs <u>Convenints</u> Benzene Ethylbenzene	M = mol T = absolutions per month Mole Fraction 0.0054 0.0006	ecular weight shilo temperal = 	of vapor, lb/lb-mole nie, *R Emissions (1919/119111) 0 42 0 05	M =	65.229 511.1
HAPs <u>Convenints</u> Benzene Ethylbenzene Hexane	M = mol T = absolutions per month Mole Fraction 0.0054 0.0066 0.0085	ecular weight of the temperal of temperal	Envissions (1919)11011111	M =	65.229 511.1
HAPs <u>Convenints</u> Benzene Ethythenzene Hexane Naphthalene	M = mol T = absolute Mole Friction 0.0054 0.0066 0.0085 0.0000	ecular weight of the temperal file (M/ 19) (M/ 28) 0 0/(28) 0 0/(28) 0 0/(4) 4 73E-06	Emissions (1919)119110 12 12 13 14 15 15 15 15 15 15 15	M =	65.229 511.1
HAPs <u>Convenints</u> Benzene Ethythenzene Hexane Naphthalene Toluene	M = niol T = absolutions per month: Mole Mole Fraction 0.0054 0.0006 0.0085 0.0000 0.0079	L. [6// 19 1 9a]) 0 0/126 0 0/048 0 0/674 4 73E-06 0 0627	Emissions (1919) 10 10 10 10 10 10 10 1	M =	65.229 511.1
HAPs <u>Compounds</u> Benzene Ethythenzene Hexane Naphthalene Tokuene Trimethylpentane (2,2,4)	M = niol T = absolute Mole Mole Friction 0.0054 0.0066 0.0085 0.0000 0.0079	L	Endsdons (190/100111) 0 42 0 05 0 66 4 606 05 0 61 0 .17	M =	65.229 511.1
HAPs <u>Compounds</u> Benzene Ethythenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m	M = niol T = absolute Mole Fraction 0.0054 0.0066 0.0085 0.0000 0.0079 0.0022	L	Emissions [Teninenth] 0 42 0 05 0 66 4 60E-05 0 61 0 17	M =	65.229 511.1
HAPs <u>Compounds</u> Benzene Ethythenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m Xylene-o	M = mol T = absolute Mole Fraction 0 0054 0 0065 0 0005 0 0079 0 0022 0 0014 0 0006	L. L. L. L. L. L. L. L. L. L. L. L. L. L	Emissions (Teninenth) 0 42 0 05 0 66 4.600-05 0.17 0 11 0.05	M =	65.229 511.1
HAPs <u>Compounds</u> Benzene Ethythenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m	M = niol T = absolute Mole Fraction 0.0054 0.0066 0.0085 0.0000 0.0079 0.0022	L	Emissions [Teninenth] 0 42 0 05 0 66 4 60E-05 0 61 0 17	M =	65.229 511.1
HAPs Controlles Benzene Ethylbenzene Hexane Naphthalene Tokiene Trimethylpentane (2,2,4) Xylene-m Xylene-o Xylene-p	M = mol T = absolute Mola Fraction 0 0054 0 0005 0 0005 0 0000 0 0079 0 0022 0 0014 0 0006	L. L. L. L. L. L. L. L. L. L. L. L. L. L	Emissions (Teninenth) 0 42 0 05 0 66 4.60E.05 0.17 0 11 0.05 0 08	M =	65.229

AUGUST	AUGUST		AUGUST		
. = 12.46 SPMT	where Lr = loading			極無	see Charl
		ion factor, dime		S = ses	1
		hor bressine" l		₽₩	4 8293
•			apor, lib/lib-mole	M.#	65.219
	T = absolul	le lemperature,	'R	T#	511.1
Gasoline Throughpul, ga	ilons per month =				19438.3 E^3 gallons
AUGUST					
HAPs	Mola		missions		
Compounds			engeeth).		
Benzene	0.0055	0.0422	0.41		
Ethythenzene	0 0006	0 0046	0.04		
i lexame	0 0066	0 0660	0 64		
Naphihaiene	0.000	4 58E-06	4.45E-05		
Tokiene	0 0081	0.0622	0 60		
Trimethylpentane (2,2,4)		0.0177	0.17		
Xylene-m	0.0015	0.0115	0.11		
Xylena-o	0 0006	0 0046	0 04		
Xylene-p	0.0011	0.0084	0.08		
Gasoline (RVP-11)	0 9717	7.4608	72.51		
TOTAL	***************************************		74.62		
TOTAL-HAPS ONLY			2.11		
SEPTEMBER	SEPTEMBEI	a	SEPTEMBE	R	
Li. = 12.46 SPM/T	where L. = loadin		gal	Li. F	see Charl
			ensionless, 1.0	S = see	1
	P = true vi	por prossure.	psla	Ps	4.4208
	M = molec	ular weight of v	rapor, Ib/lb-mole	M≖	65.194
	T = absoli	de lengerahue	, *R	T =	5(1.1
Gasolina Tixoughput, g	allons per month =			***	19438.3 E*3 gallon
SEPTEMBER					
SEPTEMBER HAPs	Mole	Li,	Emissions		
HAPs	Fraction (
HAPs			Emissions [<u>en/menth]</u> 0.36		
HAPs	Fraction (M 16 1 091 1	(dheerbre		
HAPs Compounds Benzens	frestlen(0.0053	0 0372 <u> </u> 0 0372	(21 <u>/112011)</u> 0.36		
HAPs <u>Compounds</u> Benzene Ethylbenzens	<u>Frection</u> (0.0053 0.0005	1 <u>12 94 1</u> 0 0372 0 0035	(<u>en/menth)</u> 0.36 0.03		
HAPs <u>Compounds</u> Benzens Ethylbenzens Hexans	Fresion (0.0053 0.0005 0.0005 0.0084	12 94 1 0 0372 0 0035 0 0590	(<u>20/00/01/1)</u> 0.36 0.03 0.57		
HAPs Compounds Benzens Ethylbenzens Hexans Naphthalens	Frestian 1 0.0053 0.0005 0.0005 0.0084 0.0000 0.0084	19/19 1 (18)	(<u>91/(11941))</u> 0.36 0.03 0.57 4.07E-05		
HAPs Compounts Benzens Ethylbenzens Hexans Naphthalens Toluens	Frestian 1 0.0053 0.0005 0.0005 0.0084 0.0000 0.0084	<u> </u>	0.36 0.36 0.03 0.57 4.07E-05 0.57		
HAPs Compounts Benzens Ethylbenzens Hexans Naphthalens Toluens Tilmethylpenians (2,2,4	Firstian 1 0.0053 0.0005 0.0005 0.0084 0.0000 0.0084 0.0021	12 1 月刊 _1 0 0372 0 0035 0 0590 4 19E-06 0 0590 0 0148	0.36 0.36 0.03 0.57 4.07E-05 0.57		
HAPs Compounts Benzens Ethylbenzens Hexans Naphthalens Toluens Trimethylpenlans (2,2,4) Xylens m	Fiscilan 1 0.0053 0.0005 0.0005 0.0084 0.0000 0.0084 0.0021 0.0014	0 0372 0 0372 0 0035 0 0590 4 19E-06 0 0590 0 0148 0 0098	0.36 0.36 0.57 4.07E-05 0.57 0.14 0.10		
HAPs Compounts Benzens Ethylbenzens Hexans Naphthalens Toluens Trimethylpenians (2,2,4) Xylens-m Xylens-o	Fiscilan 0.0053 0.0005 0.0005 0.0004 0.0000 0.0084 0.0021 0.0014 0.0006	0 0372 0 0372 0 0035 0 0590 4 19E-06 0 0590 0 0148 0 0098 0 0042	0.36 0.36 0.57 4.07E-05 0.57 0.14 0.10		
HAPs Compounts Benzene Ethylbenzene Hexane Naphthalene Toluene Trimethylpenlane (2,2,4) Xylene-m Xylene-p	Fiscilan 0.0053 0.0005 0.0005 0.0004 0.0000 0.0064 0.0021 0.0014 0.0006 0.0010	0 0372 0 0372 0 0035 0 0590 4 19E-06 0 0590 0 0148 0 0098 0 0042 0 0070	0.36 0.36 0.57 4.07E-05 0.57 0.14 0.10 0.04 0.07		

or all moralis

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OCTOBER .i = 12.46 SPM/T	P = true v M = molec	apor (actor, din Apor (actor, din	nensionless, 1:0 pola vapor, llullo-mola	L. = S = 600 P = M = T =	see Chart 3 9387 65 163 511.1
Gasoline Throughpul, ga DCTOBER	lions per month =			•	19438 3 E^3 gallons
HAP	Mole	Li.	Emissions)		
Compounds		(ITA 10 1 09) " (
Benzene	0.0050	00313	0.36		
Ethylbenzene	0.0005	0.0031	0.03		
lexane	0.0081	0 0507	0.49		
Naphhalena	0.0000	3 73E-06	3 62E-05		
Tokiene	0 0072	0 0450	0.44		
Tranchylpeniane (2,2,4)	0.0019	00119	0.12		
Xylene-m	0.0013	0.0081	0.08		
Xylene-a	0.0005	0 0031	0.03		
Xylene-p	0 0010	0 0063	0 06		
Gasoline (RVP-11)	0.9746	6.0978	59.27		
•					
TOTAL			60 82		
TOTAL HAPS ONLY			1.55		
Li = 12.46 SPMT	P = true : M = mole	alion lactor, dir vapor pressure	nensionless, 1.0 , psia vapor, llu'ilb-mole	L1 = S = 600 P = M = T =	see Charl 1 3.4834 65.129 511.1
Gasoline Throughpul, ga	ltons per month =	•			19438.3 E^3 gallon
NOVEMBER			Carlanta and a		
HAPs	Mole	LL.	Envissions		
Connounds	Fraction	(Ten/nwn(h) 0.26		
Benzene					
Ethylbenzene	0.0004	0.0022	0 02		
Hexane	0.0077	0.0426	0 41		
Naphilhalone	0000 0	3 30E-06	3.20E-05		
Tokume	0.0067	0.0371	0 36 0 09		
Trimethylpentane (2,2,4)		0.0088	*		
Xylena m	0.0012	0.0066	0.06		
Xyluna-o	0.0005	0.0058	0 03		
Xylene-p	, 0.0003	0 0050	0 05		
, ,	B 4564				
Gasoline (RVP-11)	0.9762	5.3990	52.47		
Gasoline (RVP-11)	0.9762	5.3993			
,	·	5.394)	52.47 53.75 1.28		

DECEMBER	DECEMBER	DECEMBER		
Li. = 12.46 SPM/T	where Li = loading loss, lb/	000 gal	la.# .e	șee Chart
	S = saturation factor	, dimensionless, 1.0	S = 880	1
	P = true vapor press	ure, psia	₽ŧ	3.2257
	M = molecular weigh	it of vapor, Ib/Ib-mole	Pą M≑	65.108
	T = absolute temper	ature, "R	T =	511.1

Gasolina Throughput, gallons per month = DECEMBER

19438.3 E^3 gallon

HAPs	Mole	1.	Emissions
Compounds	_ Fraction	(list c 91 Mil)	(Ten/menth)
Benzene	0.0046	0 0236	0 23
Ethythomzono	0.0004	0.0020	0.02
l iexane	0.0075	0.0384	0 37
Naphthalene	0.0000	3.05E-06	2.97E-05
Tokuena	0.0064	0.0328	0.32
Trimethylpentane (2,2,4)	0.0014	0.0072	0.07
Xylene-m	0.0011	0.0056	0.05
Xylene-a	0.0005	0.0026	0.02
Xylena-p	8000 0	0.0041	0.04
Gasoline (RVP-11)	0 9772	5.0031	46 63
TOTAL	·····		49.76
TOTAL-HAPS ONLY			1.13

ANNUAL LOADING RACK EMISSIONS (RVP 11 with Singlair HAPs)

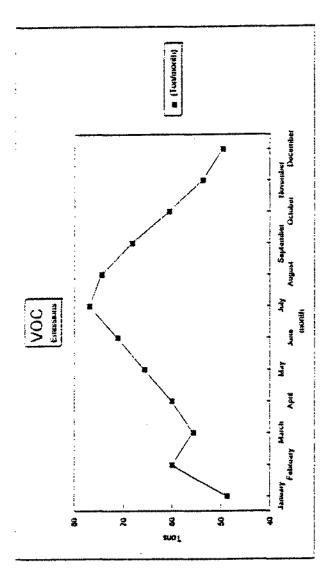
VOC Aggreg HAP Single HAP Single HAP

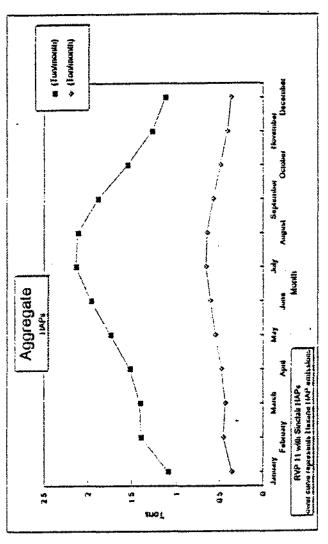
Emissions Emissions Hexane Emiss Toluene

(Tonlyr) (Tonlyr) (Tonlyr) (fonlyr)

746,30 19.23 6.05 4.46

	VOC	Aggregale	Hexane
	Emissions	HAPs	Emissions
	(Ton/month)	(TorVmonth)	(Yorkmonth)
January	48.86	1.09	0.37
February	60 05	1.40	0 46
March	55.64	1.41	0.43
April	60.17	1.52	0.48
May	65.87	1.75	0.55
tune '	71.32	1.97	061
haly	77.12	2.14	0.66
August	74 62	2.11	0.64
September	68.33	1.89	0.57
October	60.82	1.55	0.49
November	53 75	1.28	0.41
December	49.76	1.13	0.37





TANKS PROGRAM 2,0 EMISSIONS REPORT - DETAIL FORMAT TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

RVP 11. WI SINCLAIR HATE.

identification		
identification No.:	401 RVP 11	
City:	Boise	
State:	ID .	
Company:	Sinclair Oil Corp.	
Type of Tank:	External floating Roof	
Tank Dimensions		
Diameter ((t):	60	
Volume(gallons):	839400	
Turnovers:	69	
Paint Characteristics		
Shell Condition:	Light Rust	
Shell Color/Shade:	White/White	
Shell Paint Condition:	Good	
Roof Characteristics		
Roof Type:	Pouble Deck	
fitting Category:	Typicat	
Tank Construction and Rim	Seat System	
Construction:	Vel ded	
Primary Seal:	Mechanical Shoe	
Secondary Seal:	R im-mounted	
Roof fitting/Status		Quant i t
Vacuum Breaker (10-in. Di	um. Well)/Weighted Mech. Actuation, Gask.	1
Unstatted Guide Pote Hell		1
	/Adjustable, Double-Deck Roofs	10
Roof Drain (3-in. Diameter		
Kim Vent (5-in, Diameter)	/Weighted Hech. Actuation, Gask.	1
	Bin. Diam.)/Weighted Mech. Actuation, Gask	1
Gauge Float Well (20-in.)	Diam.)/Unbolted Cover, Ungask.	1
Access Hatch (24-in. Diam	.)/BOLLEG Cover, Gasketed	1

Meteorological bata Used in Emission Calculations: Boise, Idaho

Hixture/Component Hor	1	empera		Surf. (deg f) Max.	Liquid Bulk Temp, (deg F)		ressures Hin.	(psia) Hax.		Liquid Mass Fract.	Hass	Hol. Veight	Basis for Vapor Pressure Calculations
Gasoline RVP 11 JAN	4	12.41	39.23	45.60	51,12	3.1679	H/A	11/A	65.103				
Gasoline - Unicaded (RVP 11)						3.9791	H/A	N/A		0.7643	0.9775	64 70	Option 4: RVP=11.00, ASIM Stope=2.5
fierzene						0.7021	H/A	H/A		0.0188	0.0046	78.11	Option 2: A=6.9050, 8=1211.033, C=220.790
Ethylbenzene						0.0573	H/A	N/A		0.0207	0.0004	106.17	Option 2: A=6.9750, B=1424.255, C=213.210
Hexana (-n)						1.1875	H/A	N/A		0.0181	0.0075	86.17	Option 2: A=6.8760, B=1171,170, C=224,410
lsoociane Näphthalene C-10, H-8						0.2550	N/A	H/A		0.0151	0.0013	114.22	Option 1
Totagne						0.0010	H/A	N/A		0.0013	0.0000	128.16	Option 2: A=7.1463, 8=1831.571, C=211.821
Xylene (-m)						0.1864	N/A	H/A		0.0972	0.0063	92.13	Option 2: A=6.9540, 8=1344.800, C=219.480
Xylene (-a)						0.0368	N/A N/A	N/A				100.17	Option 2: A=7.0090, B=1426.266, C=215.110
Xytene (-p) "Paraxytene"						0.0515	N/A	N/A H/A			0.0004	100.17	Option 2: A=6.9980, B=1474.679, C=213.690
,						0.0313	#/R	#/A		U.U44B	8,0000	100.10	Option 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 11 FEE	4	15.64	41.69	49.59	51,12	3.3892	H/A	N/A	65.122				
Gasoline - Unleaded (RVP 11)						4.2544	H/A	N/A		0.7043	0.9766	64.70	Option 4: RVP=11.00, ASIM Stope=2.5
Benrene						0.7734	N/A	H/A		0.0188	0.0047	78.11	Option 2: A=6.9050, B=1211.033, C=220,790
fillylbenzene						0.0647	H/A	H/A		0.0207	0.0004	106.17	Option 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n) Isooctane						1.3001	H/A	N/A		0.0161	0.0077	86.17	Option 2: A=6.8760, B=1171.170, C=224.410
Haphthalena C·10, H-8						0.3111	H/A	N/A					Option 1
Toluene						0.0012	H/A	N/A		0.0013	0.0000	128.16	Option 2: A=7.1463, B=1831.571, C=211.621
Xylene (-m)						0.0777	N/A	A/K				92.13	Option 2: A=6.9540, B=1344.800, C=219.480
Xylane (-o)						0.0417	N/A N/A	A\K A\K			0.0011	100,17	Option 2: A=7.0090, B=1426.266, C=215.110
Xytene (-p) "Paraxytene"						0.0581	H/A	H/A			8000.0	106.16	Option 2: A=6.9980, B=1474.679, C=213.690 Option 2: A=7.0206, B=1474.403, C=217.773
•							•••	107 14		0.011#	P. W200	140.12	operate to personal actions featistics
Gasoline RVP 11 HAR	4	8.57	43.26	53.89	51.12	3.6011	H/A	H/A	65.138				
Gasotine - thiteaded (RVP 11)						4.5178	N/A			0.7043	0.9758	64.70	Option 4: RVP=11.00, ASIM Stope=2.5
Benzene						0.8432	H/A	H/A					Option 2: A=6.9050, B=1211.033, C=220.798
Ethylbunzene						0.0721	N/A	H/A		0.0207	0.0005	106.17	Option 2: A=6.9750, 8=1424.255, C=213.210
Hexana (-11)						1.4099	H/A	H/A		0.0181	0.0078	86.17	Option 2: A=6.8760, B=1171.170, C=224.410
Isoutene						0.3622	N/A	N/A		0.0151	0.0017	114.22	Option 1
Naphthalene C-10, H-8						0.0014	A\H	H/A		6.0013	0.0000	128.16	Option 2: A=7.1463, 8=1831.571, C=211.821
folisiene						0.2290	N/A	H/A					Option 2: A=6.9540, B=1344.800, C=219.480
Xylene (-m) Xylene (-a)				•		0.0865	H/A	N/A			0.0012		Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"						0.0466	H/A	H/A			0.0005		Option 2: A=6.9980, B=1474.679, C=213.690
ulture f ht but golfgien.						U. UQ4B	N/A	N/A		U, 9448	0.0009	186.10	Option 2: A=7.0206, 8=1474.403, C=217.773
Gasoline RVP 11 APR	5	2.46	45,90	59.03	51.12	3.8986	H/A	M/A	65.160				
Gasoline - Unleaded (RVP 11)	_	- •				4.6873	N/A			0.7043	8.9747	64.70	Option 4: RVP=11.00, ASTH Stope=2.5
प्रदान द्वार						.0.9440	N/A						Option 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene						0.0831	N/A	H/A			0.0005		Option 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n)						1.5673	H/A	H/A				86.17	Option 2: A=6.8760, B=1171.170, C=224.410

Mixture/Component	Month	lumper	Liquid atures Min.	(deg f)	Liquid Bulk Temp. (deg f)	Vapor Avg.	Prussures Hin.	(psia) Max.		Liquid Hass fract,	Vapor Mass fract.		asia for Vapor Pressure alculations
Isooctane						0.4345	N/A	N/A		0.0151	0.0019	114.22 Op	ption 1
Haphthatene C-10, H-8 Foluene						0.0017	H/A	H/A			0.0000	128.16 O	ption 2: A=7.1463, B=1831.571, C=211.821
Xylene (-m)						0.2600	¥/A	N/A		0.0972	0.0072	92.13 0	ption 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)						0.0995	R/A H/A	N/A		0.0448	0.0013	106.17 0	ption 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"						0.0746	***	H/A H/A		0.0448	0.0009	106.17 Op 106.16 Op	ption 2: A=6.9980, B=1474.679, C=213.690 ption 2: A=7.0206, B=1474.403, C=217.773
Gasotine RVP 11	MAY	56.94	49.41	64.47	51.12	4.2652	N/A	N/A	65,185				•
Gasoline - Unleaded (KVP 11)						5.3421	H/A	N/A		0.7043	0.9735	64.70 Or	ption 4: RVP=11.00, ASTH Stope=2.5
Benzene						1.0722	N/A	H/A		0.0188	0.0052	78.11 0	ption 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene						0.0975	N/A	H/A		0.0207	0.0005	106.17 0	ption 2: A=6.9750, B=1424.255, C=213.210
Hexane (*n)						1.7660	N/A	H/A		0.0181	0.0083	86.17 O	ption 2: A=6.8760, B=1171.170, C=224.410
isooctane Naphthalene C-10, H-8						0.5209	N/A	N/A		0.0151	0.0020	114.22 0	ption 1
Toluena						0.0021	H/A			0.0013	0.0000	128.16 0	ption 2: A=7.1463, B=1831.571, C=211.821
Xylene (-m)						0.2999	N/A	H/A		0.0972	0.0075	92.13 O	ption 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)						0.1165	¥/A	N/A		0.0448	0.0014	106.17 0	ption 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"						0.0874	N/A H/A			0.0448	0.0010	106.17 0	ption 2: A=6.9980, B=1474.679, C=213.690 ption 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 11	MIL	40.89	52.92	68.86	51.12	4.6111	N/A	H/A	65,206				
Gasoline - Unleaded (RVP 11)						5.7708	N/A			0.7043	0.9724	64.70 O	ption 4: RVP=11.00, ASIN Stope=2.5
Benzene						1.1969	H/A	H/A		0.0188	0.0054	78.11 0	ption 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene						0.1119	N/A	H/A		0.0207	0.0006	106.17 0	ption 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n) isooctane						1.9580	H/A	. N/A		0.0181	0.0085	86.17 0	ption 2: A=6.8760, B=1171.170, C=224.410
Naphthalene C-10, H-8						0.6006	¥/A	44,44		0.0151	0.0022	114.22 0	ption 1
Toluene						0.0025	N/A			0.0013	0.0000	128.16 0	ption 2: A=7.1463, B=1831.571, C=211.821
Xylene (-m)						0.3394	N/A			0.0972	0.0079	92.13 O	ption 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)	•					0.1334	H/A			0.0448	0.0014	106.17 0	ption 2: A=7.0090, B=1426.266, C=215.110
Xylena (-p) "Paraxylene"						0.1003	H/A H/A	H/A H/A		0.0349	0.0011	106.17 0	ption 2: A=6.9980, B=1474.679, C=213.690 ption 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 11	JUL	64.94	56.05	73.82	51.12	4.9892	H/A	¥/A	65,229				· · · · · · · · · · · · · · · · · · ·
Gasoline · Unleaded (RVP 11)						6,2389	N/A	N/A		0.7043	0.9713	64.70 m	ption 4: RYP=11.00, ASIN Slope=2.5
\$enzene				1		1.3371	H/A	N/A		0.0188	0.0056	78.11 0	ption 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene						0.1286	N/A	H/A		0.0207	0.0006	106.17 0	ption 2: A=6.9750, B=1424.255, C=213.210
Hexane (-n)						2.1725	H/A	¥/A		0.0181	0.0087	86.17 O	ption 2: A=6.8760, B=1171.170, C=224.410
Isooctane						0.6945	M/A	N/A				114.22 0	ption 1
Maphthatene C-10, N-8 Ottone						0.0030	N/A	N/A			0.0000		ption 2: A=7.1463, B=1831.571, C=211.821
XA(sus (-w)						0.3843	H/A	N/A		0.0972	0.0083	92.13 0	ption 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)						0.1530		N/A		0.0448	0.0015	106.17 0	ption 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"						0.0847		N/A			0.0007	106.17 Op	ption 2: A=6.9980, B=1474.679, C=213.690
						0.1152	N/A	H/A		0.0448	0.0011	106.16 Op	ption 2: A=7.0206, 8=1474.403, C=217.773

Mixture/Co	માર્ગ ઝલ્લા કર્યું	Nonsh			(deg f)	tiquid Butk Temp. (deg f)		fessures Hin.	(psia) Max.		Liquid Nass tract.	Hass	Mol. Veight	Basis for Calculation		ssure 	
Gasol ine R		AUG	63.26	55.14	71.38	51.12	4.8293	H/A	H/A	65.219							
	Unleaded (RVP 11)						6.0411	R/A	H/A		0.7043	0.9717	64.70	Option 4:	RVP=11.00	ASTH Slope	=2.5
Benzene							1.2774	H/A	H/A		0.0188	0.0055	78.11	Option 2:	A=6.9050.	8=1211.033	C=220.790
Ethylbenze							0.1215	N/A	N/A		0.0207	0.0006	106.17	Option 2:	A=6.9750	8=1424.255	C=213.210
Hexane (-0	13						2.0813	N/A	H/A		0.0181	0.0086	86.17	Option 2:	A=6.8760	B=1171.170	C=224.410
Isooctane	E -10 H . 0						0.6555	N/A	H/A		0.0151	0.0023	114.22	Option 1	•	-	
Lotrieue	ie C-10, II-8						0.0028	N/W	H/A		0.0013	0,0000	128.16	Option 2:	A=7.1463,	B=1831.571,	C=211.821
Xylene (-#							0.3651	N/A	H/A		0.0972	0.0081	92.13	Option 2:	A=6.9540.	8=1344.800	C=219.480
Xylene (-0							0.1446	N/A	H/A		0.0448	0.0015	106.17	Option 2:	A=7.6090,	B=1426.266	C=215.110
) "Paraxytene"						0.0798	H/A	H/A		0.0349	0.0006	106.17	Option 2:	A=6.9980,	8=1474.679	C=213.490
	, and and treatme						0.1088	H/A	H/A		0.0448	0.0011	106.16	Option 2:	A=7.0206,	B=1474.403	. C=217.773
Gasoline R		SEP	58.75	51.48	66.02	51.12	4.4208	N/A	H/A	65.194							
	Unleaded (MVP 11)						5.5350	N/A	N/A		0.7043	0.9730	64.70	Option 4:	RVP#11.00	, ASTH Stope	±=2.5
Benzene							1.1278	W/A	N/A		0.0188	0.0053	78.11	Option 2:	A=6.9050.	8=1211.033	C=220.790
Ethylbenze							0.1039	N/A	N/A		0.0207	0.0005	106.17	Option 2:	A=6.9750.	8=1424.255	C=213.210
Hexane (*n	1)						1.8518	N/A	H/A		0.0181	0.0084	86.17	Option 2:	A=6.8760.	8=1171.170	C=224.410
Isooctane	- 5 14 4 4						0.5558	N/A	N/A		0.0151	0.0021	114.22	Option 1	•		
Totuene	ia C·lu, II-8						0.0023	N/A	N/A		0,0013	0.0000	128.16	Option 2:	A=7.1463,	8=1831.571	C=211.821
Xylene (-a							0.3175	N/A	N/A		0,0972	0.0077	92.13	Option 2:	A=6.9540,	B=1344.800.	. C*219.480
XAIGUG (.c	•						0.1240	N/A	A/K		0.0448	0.0014	106.17	Option 2r	A=7.0090,	B=1426.266	C=215.110
-) "Paraxytene"					•	0.0679	A/K	H/A		0.0549	0.0004	106.17	Option 2:	A=6.9980,	B=1474.679	C=213.690
	. I w on the con-						0.0931	H/A	N/A		0.0448	0.0010	106.16	Option 2:	A=7.0206,	B=1474.403,	C=217.773
Gasoline R		OC1	52.97	47.03	58.91	\$1.12	3.9387	H/A	H/A	65,163							
Senzene	Unleaded (RVP 11)						4.9369	N/A	H/A		0.7043	0.9746	64.70	Option 4:	RVP=11.00	, ASTH Stope	=2.5
Ethylbenze	ne.						0.9578	N/A	H/A		0.0188	0.0050	78.11	Option 2:	A=6.9050,	8=1211.033	C=220.790
Hexane (-							0.0846	N/A	H/A		0.0207	0.0005	106.17	Option 2:	A=6.9750,	B=1424.255	C=213.210
ISOCCEAGE	••						1.5887	#/A	N/A		0.0181	0.0081	86.17	Option 2:	A=6.8760,	8=1171.170	C=224.410
	na C-10, 11-8						0.4443	N/A	H/A					Option 1			
Totuene							0.0017	H/A	N/A		0.0013	0.0000	128.16	Option 2:	A*7.1463,	8=1831.571	C*211.821
Xylene (-s	1)							¥/A	N/A		0.0972	0.0072	92.13	Option 2:	A=6.9540,	B=1344.800	C*219.480
Xylene (-c					•		0.1013	W/A	N/A		0.8448	0.0013	106.17	Option 2:	A=7.0090,	B=1426.266	C=215.110
) "Paraxylene"						0.0759	N/A	H/A		U.8349	0.0005	104.17	Option 2:	A=6.9980,	B=1474.679	£=213.690
•	·						U. UI 37	N/A	H/A		v.8440	8.00 tû	100.10	obtion 5:	A#7.0206,	B=1474.403	C=217.773
Gasai ine i		HOA	46.96	42.68	51.04	51.12	3.4834	H/A	N/A	65.129							
	Unleaded (RVP [1]						4.3714	N/A	N/A		0.7043	0.9762	64.70	Option 4:	RVP=11.00	ASTH Stope	=2.5
#enzene							0.8042	N/A			0.0188	0.0048	78.11	Option 2:	A=6.9050	B=1211.033,	C=220.790
Ethylbenze							0.0679	N/A	H/A		0.0207	0.0004	106.17	Option 2:	A=6.9750.	B=1424.255	C=213.210
Hexama ("1	1)						1.3486	H/A	N/A		0.0181	0.0077	86.17	Option 2:	A=6.8760,	8=1171.170,	C=224.410

Mixture/Component	Honth	•		(deg f)	Liquid Bulk) lessp. (deg f)		Pressures Hin.	(psia) Max.	Vapor Mol. Velght	tiquid Mass Fract.	Hass		Basis for Vapor Pressure Calculations
Isooctane					,	0.3341	H/A	H/A		0.0151	0.0016	114.22	Option 1
Haphthalene C-10, H-8						0.0013	H/A			0.0013			Option 2: A=7.1463, B=1831.571, C=211.821
Totuene						0.2171				0.0972			Option 2: A=6.9540, B=1344.800, C=219.480
Xylene (-m)						0.0816				0.0448			Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-o)						0.0438	•	-		0.0349			7 Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.0610				0.0448			Option 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 11	DEC	43.27	40.11	46.44	51.12	3.2257	7 N/A	H/A	65.108				
Gasoline - Unleaded (RVP 11)						4.0510	N/A			0.7043	0.9772	64.70	Option 4: RVP=11.00, ASIM Slope=2.5
Benzene						0.720	N/A	N/#		0.0188			Option 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene						0.059				0.0207			7 Option 2: A=6.9750, B=1424.255, C=213.210
Hexana (-n)						1.216				0.0181			Option 2: A=6.8760, B=1171.170, C=224.410
Isooctane						0.2699		,		0.0151			2 Option 1
Naphthalene C-10, H-8						0.001				0.0013			6 Option 2: A=7.1463, 8=1831.571, C=211.821
Toluene						0.1919				0.0972			Option 2: A=6.9540, 8=1344.800, C=219.480
Xylene (-m)						0.071	,	-			0.0011		7 Option 2: A=7.0090, 8=1426.266, C=215.110
Xylene (-o)						0.0380					0.0005		7 Option 2: A=6.9980, B=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.053							6 Outlon 2: A=7.0206, B=1474.403, C=217.773

EMIGSIONS REPORT - DETAIL FORMAT INDIVIDUAL TANK EMISSION TOTALS

Months in Report: Jarvary, February, March, April, May, June, July, August, September, October, November, December

	Losses (the	**			
Liquid Contents	VIIIA usai Kuo	Knof titting	Rim-Scal	Starting	1014
Gasoline RVP 11	179.65	4011.53	542.67	4554.20	4733.85
Gasoline - Uniteaded (RVP 11)	126.53	1907.97	528.66	4436.63	4563.15
Bentene	3.38	20.49	2.77	23.26	79.97
Ethylbenzene	3.72	2.05	0.27	5.29	6.01
Hexalle (**)	×.	32.63	4.41	37.04	40.59
Sooctana	2.71	7.63	1.03	8.67	11.38
Mushithatena C-10, H-B	0.25	0.00	00.00	00.0	92.0
Toltente	17.46	15.62	3.98	33,39	50.86
Xytene (·m)	8.05	5.23	0.71	5.94	13.99
Nylene (-o)	6.23	2.22	0.30	2.52	8.79
Xytene ('p) "Paraxylene"	\$0.05	3.92	0.53	55.5	12.50
fotal:	179.65	4011.53	542.67	4554.20	4733.85

D.OBSY TENINE COMELLIDED HATE

172.7 IB CONTEMED HIPE

Title V Engineer:

DM

Company Name:

Sinclair Oil Corp.

Location:

Boise, Idaho

Date Created: Today's Date: January 4, 1996 01/19/96

Calculation of Loading Rack Emissions

THIS SPREADSHEET IS DESIGNED TO ESTIMATE EMISSIONS BY MONTH

ASSUMPTIONS

TANKS2 0 provides the monthly average true vapor pressure of the gasoline product AND the mutar fraction of HAP constituents in the vapor phase of the gasoline product.

Reference;

AP-42, Sect. 5.2

only january is changed below

JANUARY	JANUARY	JANUARY		
Li. = 12.46 SPM/T	where Lt = loading loss, lb/	1000 gai	L. #	seo Charl
	S = saturation factor	r, dimensionless, 1 0	S = sue	1
	P = true vapor pros:	sure, psia	P#	3.8727
	M = molecular weigi	ht of vapor, 66 5 lb/lb-mole	M₩	62 354
	T = absokite temper	rature, 508°R	T∌	511.1

JANUARY Gasoline Throughput, guillons per month, =

19438.3 E^3 gallons

JANUARY

HAPs	Vapor Mass	Lı	Emissions
Compounds	Fraction	(lb/10 : gal)_	(Ten/menth)
Benzana	0.0038	0.0224	0.22
Ethylbenzene	0.0003	0.0018	0 02
l lexane	0 0062	0.0365	0.35
Naphthaleus	0.0000	3.51E-06	3.41E-05
Toluene	0.0052	0.0306	0.30
Trimethylpentane (2,2,4)	0.0011	0.0065	0.06
Xylene-m	0.0009	0.0053	0.05
Xylene-o	0.0004	0.0024	0.02
Xylene-p	0,0007	0 0041	0.04
Gasolina (RVP-13)	0.9814	5.7772	56.15

TOTAL TOTAL-HAPS ONLY

57.21

1,00

FEBRUARY	FE	BRUARY	F	EBRUAR	Y		
£ = 12.46 SPM/T	where Li = load	ding loss, lb/10	XXX gal		Lı =	see Chart	
•			dimensionless,	1.0	S = see	1	
		vapor pressu			Par	4.1361	
			of vapor, 66.5 l	b/lb-mole	M∌	62.371	
	T = abs	olule tempera	tura, 508°R		T.	511.1	
Annual Gasolina Tlyough FEBRUARY	put, gallons per	year, =			TET STATE OF THE S	19438.3 E^3 ga	lons
IIAPs	Mole	1.	Emissions				
Compounds	Fraction	(IP/10 : gal)	(Ten/menth)				
Benzena	0.0039	0 0245	0 24				
Ethylbenzana	0 0004	0 0025	0.03				
Hexane	0 0063	0 0396	0.39				
Naphthalene	0 0000	3.75E-06	3.64E-05				
Tokiena	0.0054	0.0340	0.33				
Frimethylpentane (2,2,4)	0.0013	0 0082	0.08				
Xylene m	0.0009	0 0057	0.06				
Xylana-o	0.0004	0.0025	0.02				
Xylene-p	0 0007	0.0044	0.04				
Gasoline (RVP-10)	0.9806	6.1668	59.94				
TOTAL	······································		61.12	I			
TOTAL-HAPS ONLY			1.18				
MARCH	MARCI	ł		MARCH			
Li. = 12.46 SPM/T	where t.i. = loa	uling loss, liv/1	000 gal		L. #	see Chart	
	S = sa	turation factor,	dimensionless,	1.0	S ∓ see	1	
	P = tru	e vapor press	ure, 4 O psia		₽₩	4.3878	
	M≖m	olecular weigh	t of vapor, 66 5	elorn-di\di	Min	62,386	
	ĭ = ab	solute tempera	ilina, 508°R		T # 37	511.1	
Annual Gasoline Through	npat, gallons par	year, =				19438.3 E^3 ga	illons
MARCH HAPs	Mole	L.	Emissions	1			
Compounds		_(<u> b/10 1 gel)</u> _	(Ten/menth)				
Benzana	0 0040	H#11#_1 M#11. 0.0267					
		0.0027	0.03				
	111##14						
Ethylbanzene	0.0004	•					
Ethylbanzene Haxana	0.0065	0.0434	0 42				
Ethylbanzene Haxane Naphthalene	0.0065 0.0000	0.0434 3.98E-06	0 42 3.87E-05				
Ethylbanzene Hexane Naphthalene Tokiene	0.0065 0.0000 0.0057	0.0434 3.98E-06 0.0380	0 42 3.87E-05 0.37				
Ethylbanzene Haxana Naphthalene Toluene Trimethylpentane (2,2,4)	0.0065 0.0000 0.0057 0.0014	0.0434 3.98E-06 0.0380 0.0093	0 42 3.87E-05 0.37 0.09				
Ethylbenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m	0.0065 0.0000 0.0057 0.0014 0.0010	0.0434 3.98E-06 0.0380 0.0093 0.0067	0 42 3.87E-05 0.37 0.09				
Ethylbenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene m Xylene o	0.0065 0.0000 0.0057 0.0014 0.0010 0.0004	0.0434 3.98E-06 0.0380 0.0093 0.0067 0.0027	0 42 3.87E-05 0.37 0.09 1 0.06 0.03				
Ethylbenzene Hexane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m	0.0065 0.0000 0.0057 0.0014 0.0010	0.0434 3.98E-06 0.0380 0.0093 0.0067	0 42 3.87E-05 0.37 0.09				
Ethylbanzene Haxane Naphthalene Tokiene Trimethylpentane (2,2,4) Xylene-m Xylene-o Xylene-p Gasoline (RVP-18)	0.0065 0.0000 0.0057 0.0014 0.0010 0.0004 0.0007	0.0434 3.98E-06 0.0380 0.0093 0.0067 0.0027 0.0047	0 42 3.87£-05 0.37 0.09 0 06 0.03 0 06 63.55				
Ethylbanzene Haxane Naphthalene Toluene Trimethylpentane (2,2,4) Xylene-m Xylene-o Xylene-o Xylene-p	0.0065 0.0000 0.0057 0.0014 0.0010 0.0004 0.0007 0.9799	0.0434 3.98E-06 0.0380 0.0093 0.0067 0.0027 0.0047	0 42 3.87E-05 0.37 0.09 1 0.06 0.03 0.05				

APRIL	APRIL		APRIL		
L = 12.46 SPM/T	where I. = loadi	na loss. lb/10	000 gal	Le #	see Chart
, , , , , , , , , , , , , , , , , , ,			dimensionless, 1.0	S = 500	1
		vapor pressu	•	P =	4.7407
			of vapor, 66 5 lb/lb-mo	: -	62.405
		kde temperal	T	ΤΨ	511.1
		•			•
Annual Gasoline Through	put, gallons per ye	: 36° =			19438.3 E^3 gallon
APRIL					
HAPs	Mole	Lı	Emissions		
Compounds	fraction([b(10.1 gal)	(Tervinentii)		
Benzene	0 0042	0 0303	0.29		
Ethythenzene	0 0004	0 0029	0.03		
Hexane	0.0067	0 0483	0.47		
Naphthalana	0.0000	4.30E-06	4.18E-05		
Toluene	0.0059	0.0426	0.41		
Trimethylpentane (2,2,4)	0.0015	0.0108	0.11		
Xylone-m	0.0010	0.0072	0.07		
Xylene-o	0.0004	0.0029	0.03		
Xylena-p	0.0008	0.0058	0.06		
Gasoline (RVP-10)	0.9790	7.0606	68.62		
(.)	0.0100	1.0000			
TOTAL			70 09		
TOTAL-HAPS ONLY			1,47		
MAY	MAY		MAY		
L. = 12.46 SPM/T	where Li = load	ing loss, lb/1	000 gai	LL ₹	see Chart
	S = satu	uation factor,	dimensionless, 1.0	S = 500	- Marie - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 19
	P = true	vapor pressi	re, 4.0 psla	P =	5.1744
			of vapor, 66.5 lb/lb-m		62.447
	T = abso	eregraet etuk	ture, 506°R	T =	511.1
		•	•		
Annual Gasoline Through	mat nations per y	our =			19438,3 E^3 gallor
MAY	, ,	•			, , , , ,
HAPs	Mole	Lı.	Emissions		
Compounds	Fraction	(leu : 91\di)	(Ten/menth)		
Benzane	0.0045	0.0354	0.34		
Ethylkenzene	0.0005	0.0039	0.04		
tiexane	0.0071	0.0559	0.54		
Naphthalene	0.0000	4 69E-06	4.56E-05		
Toluene	0.0066	0.0520	0.51		
Trimethylpentane (2,2,4)		0 0142	. 014		
Xylunu-m	0.0012	0.0095	009		
Xylana-o	0.0005	0.0039	0 04		
Xylene-p	0.0009	0.0071	0.07		
Gasoline (RVP-18)	0.9779	7.7030	74.67		
/3	2.51,0	I ' E ANNES	. 7.4.		
TOTAL			76.64		

TOTAL TOTAL-HAPS ONLY

76 64

1.77

S = saturation factor, dimensionless, 1.0 S = see Factor pressure, 4.0 psis M = molecular weight of vapor, 65 5 billo-mole T = absolute temperature, 508°R T = 511.1	AUGUST	AUGUST		AUGUST	
P = true vapor pressure, 4.0 psia	L. = 12.46 SPM/T		- '	•	Li ₹
M = molecular weight of vapor, 66.5 bir/lb-mole M = 62,459 T = absolute temperature, 508°R T = 511.1 Annual Gasoline Throughput, gallons per year, = AHGUST		S = salu	ration factor, c	dimensionless, 1.0	
T = absolute temperature, 508°R T = 511.1 Annual Gasoline Throughput, gallons per year, = AllGUST HAPs		P = true	vapor praesu	re, 4.0 psia	P = 5.8401
Annual Gasoline Throughput, gallons per year, = ANGUST HAP6 Mole L. Emissions Commercial Fraction (Ibrile) gall (Tenimentis) Benzene 0 0046 0 0409 0 40 Ethybenzene 0 0005 0 0044 0 62 Naphthalene 0 0006 0 0665 0 5 105: 05 Toktone 0 0068 0 0605 0 59 Inmultylpuntario (2,2,4) 0 0010 0 0169 0 16 Xylone 0 0 0068 0 0605 0 59 Inmultylpuntario (2,2,4) 0 0010 0 0169 0 16 Xylone 0 0 0068 0 0605 0 059 Inmultylpuntario (2,2,4) 0 0010 0 0169 0 16 Xylone 0 0 0068 0 0605 0 059 Inmultylpuntario (2,2,4) 0 0010 0 0169 0 16 Xylone 0 0 0076 0 0009 0 0009 Gasoline (RVP-)0) 0 9764 8 6824 84 39 TOTAL TOTAL 140PS ONLY SEPTEMBER SEPTEMBER SEPTEMBER SPENDBER Where L. = loading loss, Ib/1000 gal S = saturation factor, dimensionless, 1 0 P = 5,3582 M = molecular weight of vapor, 65 5 libiti-mole T = absolute temperature, 508'R Annual Gasoline Throughput, gallons per year, = SEPTEMBER Li # \$62,437 T = \$11,1 Annual Gasoline Throughput, gallons per year, = SEPTEMBER LiAPs Mole L. Emissions Compounds Fraction (Ib/10 pgal) (Tenimontis) Bettighorizonia (1004 0 0059 0 0.35 Lithyburizonia (1000 4 866: 6 4.72=.05 Liukane 0 0000 4 00052 0.51 Irimuthylpentario (2,2,4) 0 0017 0 0139 0.13 Xylone 0 00009 0.0073 0.07 Gasoline (RVP-)0) 0.9775 7.9721 77.48 TOTAL		M = mok	ecular weight	of vapor, 66.5 lb/lb-mole	M = 62.459°
HAP6		T = abso	date temperat	ure, 508*R	T# 511.1
Compounds	Annual Gasoline Through	put, gallons per y	ear, =		19438,3 E^3 gallons
Combounds Fraction (bb/19 gal) (Ten/month)					
Banzene	1				
Ethythenzene 0 0005 0 0044 0 04 Itaxanu 0 0072 0 0640 0 62 Itaxanu 0 0072 0 0640 0 665 Itaxanu 0 0000 5 30E-06 5 15E-05 Itaniuntytyteintanu (2,2,4) 0 0019 0 169 0 16 Xylanu 0 0 00012 0 0107 0 10 Xylanu 0 0 0002 0 0009 0 0009 0 0009 Xylanu 0 0 0005 0 0009 0 0009 0 0009 Xylanu 0 0 0005 0 0009 0 0009 Xylanu 0 0 0005 Xylanu 0 0 0005 Xylanu 0 0 0005 Xylanu 0 0 0009 0 0009 0 0009 Xylanu 0 0 0005 Xylanu 0 0 0005 Xylanu 0 0 0009 Xylanu 0 0 0000 Xylanu 0 00000 Xyl		fracilen(
Tioxanu					
Naphthalene	1 "				
Tukesne	1			1	
Immultiylpentane (2,2,4)	1 '				
Xyleine-in]			+- }	
Xylumu o	•			· ·	
Xylene-p	1 7		-		
Casoline (RVP-10) 0 9764 8 6824 84.39 73 7574L 75 75 75 75 75 75 75 7	1 *			- 1	
TOTAL TOTAL—IAPS ONLY SEPTEMBER SEPTEMBER L. = 12.46 SPM/T Where L. = loading loss, tb/1000 gal L. = 12.46 SPM/T Where L. = loading loss, tb/1000 gal S = saturation factor, dimensionless, 1.0 P = true vapor pressure, 4.0 psia P = true vapor pressure, 4.0 psia P = true vapor pressure, 4.0 psia P = 5.3582 M = modecular weight of vapor, 66.5 tb/tb-mole M = 62.437 T = absolute temperature, 508°R Annual Gasoline Throughput, gallons per year, = SEPTEMBER IIAPs Mole LL Emissions Compounds Fraction (lb/10 yal) (Ton/month) Benzene 0.0044 0.0059 0.35 Ethylbunzonu 0.0004 0.0057 0.55 Naphthalone 0.0000 0.0057 0.055 Naphthalone 0.0000 0.0057 1.055 Naphthalone 0.0000 0.0001 0.0012 Trimethylpentane (2,2,4) 0.0017 0.0139 0.13 Xylune m 0.0012 0.0098 0.10 Xylene-0 0.0009 0.0073 0.07 Gasoline (RVP:10) 0.9775 7.9721 77.48 TOTAL	1 7			l l	
TOTAL TOTAL—HAPS ONLY 2.04 SEPTEMBER SEPTEMBER SEPTEMBER L = 12.46 SPM/T Where L = loading loss, lb/1000 gal S = saturation factor, dimensionless, 1.0 P = true vapor pressure, 4.0 psia P = free vapor pressure, 4.0 psia P = free vapor pressure, 4.0 psia P = free vapor pressure, 5.05 bl/lb-mole M = 62.437 T = absolute temperature, 5.08°R Annual Gasoline Throughput, gallons per year, = SEPTEMBER IIAPS Mole LL Emissions Compounds Fraction (lb/10 rgs) (Ton/month) Benzene 0.0004 0.0059 0.055 Naphthalone 0.0004 0.0033 0.03 Hexane 0.0000 4.86E.06 4.72E.05 Naphthalone 0.0000 4.86E.06 4.72E.05 Naphthalone 0.0000 0.0571 0.55 Naphthalone 0.0000 0.0572 0.13 Tybure in 0.0012 0.0098 0.10 Xybure in 0.0005 0.0041 0.04 Xylene-0 0.0005 0.0041 0.04 Xylene-0 0.0009 0.0773 7.748 101AL 79.27	1 1 1	0 9/64	8 6824	84.39	
SEPTEMBER SEPTEMBER SEPTEMBER SEPTEMBER	I	, ,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		RE 43	
SEPTEMBER SEPT					
L = 12.46 SPM/T where L = loading loss, tb/1000 gat L = see Chart	Inter the court			#	
S = saturation factor, dimensionless, 1.0			-		
P = true vapor pressure, 4.0 psia M = molecular weight of vapor, 66.5 tb/tb-mole M = 62.437 T = absolute temperature, 508°R Annual Gasoline Throughput, gallons per year, = 511.1 Annual Gasoline Throughput, gallons per year, = 19438.3 E^3 gallons SEPTEMBER IIAPs	Li. = 12.46 SPM/T		-	***	
M = molecular weight of vapor, 66 5 lb/lb-mole M = 62.437 T = absolute temperature, 508*R T = 511.1					
T = absolute temperature, 508°R T = 511.1 Annual Gasoline Throughput, gallons per year, = 19438.3 E^3 gallons SEPTEMBER IIAPs				•	1
Annual Gasoline Throughput, gallons per year, = 19438.3 E^3 gallons SEPTEMBER IIAPs Mole L. Emissions Compounds Fraction (lb/10 gal) (Ton/month) Benzene 0.0044 0.0359 0.35 Ethylbenzone 0.0004 0.0033 0.03 Hexane 0.0070 0.0571 0.55 Naphthalene 0.0000 4.86E-06 4.72E-05 Tukiene 0.0064 0.0522 0.51 Introethylpentane (2,2,4) 0.0017 0.0139 0.13 Xylene in 0.0005 0.0041 0.04 Xylene-0 0.0005 0.0041 0.04 Xylene-p 0.0009 0.0073 0.07 Gasoline (RVP-10) 0.9775 7.9721 77.48			· · · · · · · · · ·	•	
Total Tota		T = abse	okile tempera	lure, 508°R	T# 511.1
Total Tota	Annual Gasoline Through	anul Galions nec	mar =		19438 3 E^3 gallons
Compounds Fraction (lb/10 gal) (Ton/month)		dent' Baratia hat 1	,,		The state of the s
Benzene	IIAPs	Mole	l.	Emissions	
Benzene	Compounds	Fraction	(lb/10 + gal)	(Ton/month)	
Hexans					
Naphthalene 0.0000 4.86E-06 4.72E-05 Tokiene 0.0064 0.0522 0.54 Trimethylpestane (2,2,4) 0.0017 0.0139 0.13 Xylone in 0.0012 0.0098 0.10 Xylone-0 0.0005 0.0041 0.04 Xylone-p 0.0009 0.0073 0.07 Gasoline (RVP-10) 0.9775 7.9721 77.48 / 3	Ethytourzona	0.0004	0.0033	603	
Toksene 0 0004 0.0522 0 51 Trimethylpentane (2,2,4) 0.0017 0.0139 0.13 Xyloro m 0.0012 0.0098 0.10 Xyloro-0 0.0005 0.0041 0.04 Xyloro-p 0.0009 0.0073 0.07 Gasolino (RVP-10) 0.9775 7.9721 77.48 / 3	Hexans	0.0070	0.0571	0.55	
Toksene 0 0004 0.0522 0 51 Trimethylpentane (2,2,4) 0.0017 0.0139 0.13 Xyloro m 0.0012 0.0098 0.10 Xyloro-0 0.0005 0.0041 0.04 Xyloro-p 0.0009 0.0073 0.07 Gasolino (RVP-10) 0.9775 7.9721 77.48 / 3	Naphthalore	0.0000	4 86E-06	4.72E-05	
Xylunu (ti. 0.0012 0.0098 0.10 Xylunu (ti. 0.0005 0.0041 0.04 Xylunu (ti. 0.0009 0.0073 0.07 Gasolinu (ti. 0.9775 7.9721 77.48 TOTAL 79.27	1	0 0064	0.0522	051	
Xylunu (ti. 0.0012 0.0098 0.10 Xylunu (ti. 0.0005 0.0041 0.04 Xylunu (ti. 0.0009 0.0073 0.07 Gasolinu (ti. 0.9775 7.9721 77.48 TOTAL 79.27	1				
Xylene-0					
Xylene p 0.0009 0.0073 0.07 Gasolinu (RVP-10) 0.9775 7.9721 77.48 /)	1 -	A WYOS	0.0041	0.04	
Gasolinu (RVP-10) 0.9775 7.9721 77.48 TOTAL 79.27	i ∨Asptio.n	44.100.400			
TOTAL 79.27	1		0.0073	0.07	
	Xylene-p	0.0009			
Manager 12 and 12 and 13 and 14 and 15 and 1	Xylene-p Gasoline (RVP ₂ 10)	0.0009			
TOTAL-HAPS ONLY 以上的一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	Xylene-p Gasolinu (RVP-10) / 3	0.0009		77.48	

DECEMBER	DECEMBER	DECEMBER		
Li = 12.46 SPM/T	where L. = loading loss, Ib/10	00 gai	J. L. #	see Chart
	S = saturation factor, d	imensionless, 1.0	S = see	
	P = true vapor pressur	e, 4 0 psia	Pr	3.9415
	M = molecular weight o	of vapor, 66.5 lb/lb mole	M =	62 359
	T = absolute temperatu	#e, 508°R	T =	62 359 511.1

Monthly Gasoline Throughput, gallons per monthly =

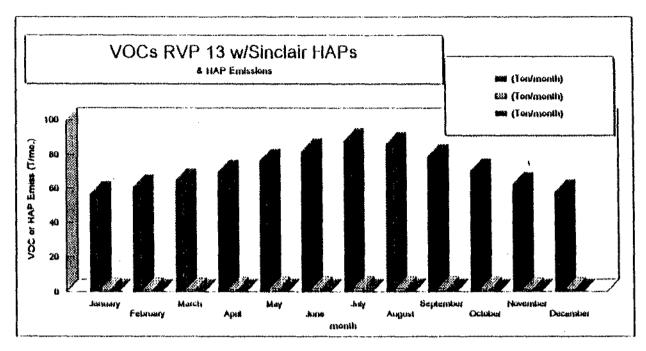
19438.3 E+3 gallons

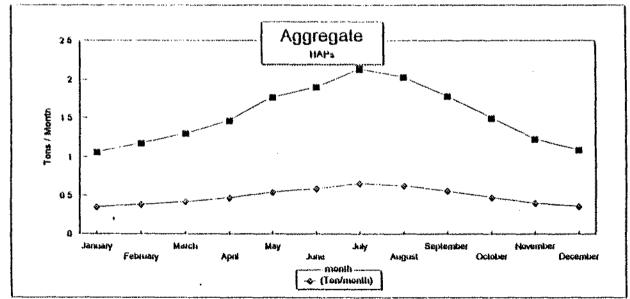
HAPs	Mole	Ł.	Emissions
Compounds	Fraction	(N2/10 : gal) .	(Tentmenth)
Benzene	0.0038	0.0228	0.27
Ethylbenzene	0.0003	0 0018	0.02
liexane	0.0062	0 0371	0.36
Naphihalene	0.0000	3 57E-06	3.47E-05
Tokiene	0 0053	0.0318	0.31
Frimethylpentane (2,2,4)	0.0012	0.0072	0.07
Xylene-m	0.0009	0.0054	0.05
Xylene-a	0.0004	0.0024	0.02
Xyiene⊹p	0 0007	0.0042	0.04
Gasotine (RVP-10)	0.9812	5.8791	57.14
TOTAL	^		58.2

TOTAL 58 24
TOTAL HAPS ONLY 1.09

ANNUAL LOADING RACK EMISSIONS (RVP 13 WIII) SInclair HAP'S Note HAP Single HAP Single HAP Single HAP Single HAP Single HAP (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr) (Tonlyr)

	1	Aggregale	Hexane	VOC
	ļ	HAPs	Emissions	Emissions
	1	(Torvinonth)	(Tor/month)	(Torvmonth)
Jamiary		1.06	0 35	57.21
February	1	1.18	0.39	61.12
March	- 1	1.30	0 42	64 86
April	- 1	1.47	0.47	70 09
May	- 1	1.77	0 54	76.64
erust.		191	0 59	62.58
July	'	2 14	0 65	88,53
August	- 1	2 04	0.62	86.43
September	- 1	1.78	0 55	79.27
October	- 1	1.50	0 47	70 8 0
November	1	1.24	0.40	62.78
<u>December</u>	. [.دهبیعه	1.09	0.36	58.24





TANK IDENTIFICATION AND PHYSICAL CHARACTERICS

RVP 13 - SINCHAIR MAT COMPERITION,

Identification

Identification No.: 401 RVP13

City: Boise
State: 10
Company: Sinctair Oil Corp
Iype of lank: External floating Roof

lypu of lank: External float
lank Dissurer (fl): 60
Volume(gallons): 839400
lurnovers: 69

Volume(gallons): 537400
furnovers: 69
Paint Characteristics 119ht Aust
Shell Condition: 119ht Aust
Shell Paint Condition; Good
#Dof Characteristics

Roof Type:
Roof Type:
fitting Category: Typical
fatting Category: Typical
Tank Construction and Rim-Seal System
Construction: Netled
Primary Seal: Hechanical Shoe
Secondary Seal: Rim-mounted

Roof Firting/Status

Vactoring Evenkur (10-ln. Diam. Vull)/Vaighted Nach. Actualion, Gusk.

Vactoring Evenkur (10-ln. Diam. Vull)/Vaighted Nach. Actualion, Gusk.

Noof tey (3-in. Diameter)/Adjustable, Double-Deck Roofs

Roof tey (3-in. Diameter)/Adjustable, Double-Deck Roofs

Roof tey (3-in. Diameter)/Adjustable, Double-Deck Roofs

Roof tey (3-in. Diameter)/Advanter, Gusk.

Garno-Hatch/Sample Voil (4-in. Diam.)/Vacighted Much. Actuation, Gusk

fangu-Hatch/Sample Voil (4-in. Diam.)/Makoited Cover, Imgauk.

Mateurological Data tised in twisciest Calculations: Bolsu, Idaho

TANKS PROGRAM 2.0 EMISSIONS REPORT + DETAIL FORMAT LIQUID CONTENTS OF STORAGE TANK

		Daily	Daily Liquid Surf.	Sur (Liquid Butk				Verson	i icasiat	Vanor						
Hixlure/Confession	House	Temper Avg.	atures Nin.	Temperatures (deg f) Temp. Avg. Min. Max. (dug.	Temp. (dug f)		Vapor Pressures (psiu) Avg. Min. Max.		Mot. Veight	Hass Fruct.	Hass fract.	Mol.	Hol. Basis for Ya Veight Calculations	Basis for Yapor Pressura Calculations	a Jussa.		
	-						***************************************	* * * * * * * * * * * * * * * * * * *		* * * * * * * * * * * * * * * * * * * *	; ; ;	;	1	£ 3	***************************************	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Benine est is with a tental	£ 5	46.3	37.63	"E. " 17.63 43.04 31.	21.16	3.0(6/	Y/#	× :	M/A 62.334								
Father than the contract						6.7021	¥/#	#/#		0.0188	0.0038		Option 2:		A=6.9050, B=1211.033,		C=220.790
Gacotton (100 11)						CO.U.	*/#	∀		0.0207	0.0003		Option 2	2: A=6.9756	A=6.9750, B=1424.255,	.255, C	C=213.210
						0.03	W/W	¥/		0,7043	0,9814		Option 4		RVP=13.00, ASIN Stope=2.5	Stope=2	w.
						1.1875	¥/¥	¥/#		0.0181	0.0062		Option 2	2: A=6.8760	A=6.8760, 8=1171.170, C=224.410	.170, €	224.410
						0.2550	¥/#	M/A		0.0151	0.0011	114.22	Option 1				
Majalianiche L'IL, M'D						0.0010	¥.	M/A		0.0013	0.000.0		Option 2	2: A=7.1463,	1, 8=1831.571,		C*211.821
			-			0.1864	¥/#	H/A		0,0972	0.0052	92.13		2: A=6.9540,			C=219.480
AVEST ()						0.0690	K/A	¥/#		0.0448	0.0009						C=215,110
Aytene (-0)						0.0368	4/H	¥/#		0.0349	0.0004	106.17		2: A=6.9980,			C=213.690
Aptena ('p) 'raenaylena"						0.0515	K/A	¥/¥		0.0448	2000.0	106.16	Option 2	2: A=7.0206,			C=217.773
Gasoline RVP 13 with Sinclair	**	45.64	45.64 41.69 49.59	49.59	51.12	4,1361	W/#	4/2	177 62 AV								
Benzene						0.7734	*	×/×		0.0188	0.0039	78.11	Option 2	2: 4=6.9050	A=6.9050_8=1211_033		C=220_790
						0.0647	∀	#/#		0.0207	0.0004		Option 2:		A=6.9750, B=1424.255		C=213.218
GREGITTE (KVF 15)						5. 1633	H/A	K/X		0.7043	9086.0		Option 4		RVP=13.00, ASIM Slope=2.5	Stope=2	v,
						1.3001	¥/#	H/A		0.0181	6.0063		Option 2	2: A=6.876	A=6.8760, 8=1171.170.	170 C	C=224.410
						0.3111	#/#	H/A		0.0151	0.0013		Out lon 1		•	•	
						0.0015	¥/#	N/A		0,0015	0.000.0		Option 2	2: A=7.1463.	1. B=1631.571.		C=211_821
						0.2078	¥/#	W/A		0.0972	0.0054		Option 2				C=219.480
						0.0777	¥/¥	H/A		0.0448	6,000.0	106.17	Oystion 2	2: A=7.0090			C=215.110
TO THE PROPERTY OF THE PROPERT						0.0417	∀ /#	¥/#		0.0349	0.0004	106.17	Option 2:				C=213.690
where the transporters.						0.0583	¥/¥	H/A		0.0448	0.0007	106.16	Option 2:				C=217.773
Gasoline RVP 13 with Sincluir	HAR	48.57	48.57 43.26	53.89 51.	51.12	4.3878	*/*	H/A	M/A 62.386								
0617616						0.8432	× ×	¥/#		0.0188	0,0040	78.11	Oction 2:		A=6.9050 8=1211.033		C=220, 798
						0.0721	¥/#	H/A		0.0207	0.0004		Option 2:		1. 8=1424	. 255. C	C*213.210
						5.4749	¥/¥	#/#		0.7043	0.9799		Option 4		RVP=13.00, ASTM Siope=2.5	Si ope=2	5
TOOCTANA TI						1.4099	¥/¥	¥/₩		0.0161	0.0065				A=6.8760, 8=1171,170, C=224,410	. 170. C	224.410
Naththalene C-18 H-R						0.3622	*	W/W		0.0151	0.0014		Option 1				
Tolliens						0.0014	Y/#	¥/#		0.0013	0.000.0		Option 2				C=211.821
Xviene (-m)						0.62%	≤ :	K/A		0.0972	0.0057	92, 13			3, 8=1344.800,	. 800 c	C=219.480
X>[en] (:0)				-		e cogo	¥ :	¥/#		0.0448	0.00.0		Option, 2			.266, C	C=215.110
Xylene ("0) "Parazviena"						0.0460	× :	K/A		0.0349	0.0004		Option 2		1, 8=1474	.679, C	C#213.690
						0.0648	¥	¥/#		0.0448	€000.0	106.16	Option 2	2: A=7.0206,	5, 8=1474.403,	.403, C	C=217.773
Gasoline RVP 13 with Sinclair	APR	52.46	52.46 45.90	59.03	51.12	4.7407	H/A	X/X	N/A 62,405								
						0.9440	¥/¥	× ×		0.0188	0.0042	78.11	Ootion 2:		4=6 9050 B=1211 673		000 000
						0.0831	K/X	Y/ #		0.0207	7000		Option 2:	1 4=6 975	A=6.750 B=1226 255	3 2 3 3 5	211 210
Mason De (XVF 15)						5.9114	H/A	¥/#					Option 4	4: RVP=13.	RVP=13.00 ASIM Shopes2.5	Siones2	
(G.) ******						1.5673	¥/¥	¥/¥				86.17	Opt ion 2	2: A=6.876(A=6.6769 B=1171 170 C=224 410	178	017 762
													·		:		

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT LIQUID CONTENTS OF STORAGE TANK, CONT.

Mixture/Component	Nonth		atures	Surf. (deg f) Max.	Liquid Bulk Yeap. (deg f)	Vapor Pro Avg. i	ssures lin.	(psia) Hax.	Vapor Hol. Weight	Liquid Mass fract.	Vapor Mass Fract.	Mot. Basis for Weight Calculati	· Vapor Pressure ons
Isocciane						0.4345	H/A	N/A		0.0151	0.0615	114.22 Option 1	**************************************
Najkihalene C-10, H-8 Totuene						0.0017	N/A	_			0.0000	128.16 Option 2:	A=7.1463, B=1831.571, C=211.821
Xylene (-m)						0.2600 0.0995	N/A					92.13 Option 2:	A=6.9540, B=1344.800, C=219.480
Xylene (-o)						0.0539	N/A H/A				0.0010	106.17 Option 2;	A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Peraxylene"						0.0746	N/A			0.0448	0.0008	106.17 Option 2: 106.16 Option 2:	A=6.9980, B=1474.679, C=213.690 A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair	HAY	56.94	49.41	64.47	51.12	5.1744 \$	N/A	N/A	62,428				
Benjene						1.0722	H/A			0.0188	0.0043	78.11 Option 2:	A=6.9050, 8=1211.033, C=220.790
Ethylbenzene Gasoline (RVP 13)						0.0975	N/A	-		0.0207	0.0004	106.17 Option 2:	A=6.9750, B=1424.255, C=213.210
Hexane (-n)						6.4476	N/A			0.7043	0.9779	62.00 Option 4:	RVP=13.00, ASTM Stope=2.5
inoctane						1.7660 0.5209	N/A			0.0181	0.0069	86.17 Option 2:	A=6.8760, B=1171.170, C=224.410
Naphthatene C-10, H-8						0.0021	N/A N/A			1 (104 0	0.00017	114.22 Option 1	
Toluene						0.2999	N/A			0.0013	0.0003	169.10 Option 61 92.13 Antion 2:	: A=7.1463, B=1831.571, C=211.821 : A=6.9540, B=1344.800, C=219.480
Xylene (-m)						0.1165	H/A			0.0448	0.0011	106.17 Outlan 2:	A=7.0090, B=1426.266, C=215.110
Xylena (-a)						0.0636	N/A	N/A		0.0349	0.0005	106.17 Option 2:	A=6.9980, 8=1474.679, C=213.690
Xylene (.h) "Paraxylene"						0.0874	¥/A	A/K		0.0448	0.0008	106.16 Option 2:	A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair Benzene	HIJE	40.89	52.92	68.86	51.12	5.5828 #	N/A		62.447				
Ethylbenzene						1.1969	H/A			0.0188	0.0045	78.11 Option 2:	A=6.9050, B=1211.033, C=220.790
Gasoline (RVP 13)						0.1119 6.9519	N/A			0.0207	0.0005	106.17 Option 2:	A=6.9750, 8=1424.255, C=213.210
Hexane (-n)						1.9580	N/A N/A			0.7043	0,9770	62.00 Option 4:	RVP=13.00, ASTH Stope=2.5
isooctane						0.6006	H/A			0.0101 0.0151	0.00/1	90.17 Option 2: 114.22 Option 1	A=6.8760, B=1171.170, C=224.410
Haphthatone C-10, H-8						0.0025	H/A			0.013	0.0010	114.66 Option 1 128 16 Outlon 2:	A=7.1463, B=1831.571, C=211.821
Toluene						0.3394	H/A			0.0972	0.0066	92.13 Option 2:	A=6.9540, B=1344.800, C=219.480
Xylene (-m)						0.1334	N/A	H/A		0.0448	0.0012	106.17 Option 2:	A=7.0090, B=1426.266, C=215.110
XAjene (-b) "belskijene" XAjene (-o)						0.0734	R/A	-		0.0349	0.0005	106.17 Option 2:	. A=6.9980, B=1474.679, C=213.690
						0.1003	N/A	A\H		0.0448	0.0009	106.16 Option 2:	A=7.0206, B=1474.403, C=217.773
Gasolina RVP 13 with Sinclair Benzene	JUL	64.94	56.05	73.82	51.12	6.0283	H/A		62.468				
Ethylbenzene						1.3371	N/A	***				78.11 Option 2:	A=6.9050, B=1211.033, C=220.790
Gasoline (RVP 13)				•		0.1286 7.5016	N/A				0.0005	106.17 Option 2:	A=6.9750, B=1424.255, C=213.210
Nexane (-H)						2.1725	#/A #/A	*		0.785	0.9/00 0.0072	oz.uu Option 4:	RVP=13.00, ASIN Slope=2.5
isoctane						0.6945	H/A				0.0073	00.17 Option 2; 114.22 Option 1	A=6.8760, B=1171.170, C=224.410
Najhthalene C-10, H-8						0.0030	N/A				0.0000		A=7.1463, #=1831.571, C=211.821
foliume						0.3843	N/A					92.15 Option 2:	A=6.9540, B=1344.800, C=219.480
Xylene (-m)						0.1530	N/A	N/A		0.0448	0.0013	106.17 Option 2:	A=7.0090, B=1426.266, C=215.110
Xylene (-o) Xylene (-p) "Paraxylene"						0.0847	N/A				0.0005	106.17 Option 2:	A=6.9980, B=1474.679, C=213.690
and a series of the series and series.					•	0.1152	N/A	H/A		0.0448	0.0010	106.16 Option 2:	A=7.0206, B=1474.403, C=217.773

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT LIQUID CONTENTS OF STORAGE TANK, CONT,

Mixture/Component Mant		quid Surf, ures (deg f) in. Hax.	Liquid Bulk Teap. (deg f)	Vapor Pr Avg.	essures Hin.	(psia) Max.	Vapor Mol. Veight	Liquid Mass Fract.	Mass	Mot. Bas Weight Cal	is for Vapor Pressure culations
Gasoline RVP 13 with Sinclair AUG	63,26 5	5.14 71.38	51.12	5.84014	H/A	M/A	62,459				
Benzene			. , . , _	1.2774	H/A	H/A		0.0188	0 0048	78 11 Ont	ion 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene				0.1215	H/A	H/A		0.0207	0.0005	106.17 Dot	ion 2: A=6.9750, B=1424.255, C=213.210
Gasoline (RVP 13)				7.2695	H/A	H/A			0.9764	140 00.50	ion 4: RVP=13.00, ASTM Stope=2.5
ilexane (+n)				2.0813	H/A	H/A		0.0181		86.17 Opt	ion 2: A=6.8760, B=1171.170, C=224.410
Isocciane				0.6555	N/A	H/A		0.0151	0.0019	114.22 Opt	ion 1
Naphthalene C-10, H-8 Toluene				0.0028	N/A	N/A		0.0013	0,0000	128.16 Opt	ion 2: A=7.1463, B=1831.571, C=211.821
Xylone (-m)				0.3651	H/A	N/A		0.0972	8800.0	92.13 Opt	ion 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)				0.1446	H/A	H/A		0.0448	0.0012	106.17 Opt	ion 2: A=7.0090, 8=1426.266, C=215.110
Xylene (-p) "Paraxylene"				0.07 98 0.1088	M/A	N/A		0.0349		186.17 Opt	ion 2: A=6.9980, B=1474.679, C=213.690
				0.1000	H/A	H/A		0.8448	0.0009	106.16 Opt	ion 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair SEP	58.75 5	1.48 66.02	51.12	5.3582	H/A	LE /A	62.437				
Benzena		•		1.1278	N/A			0.0188	0.0044	78 11 Oct	ion 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene				0.1039	H/A			0.0207		106 17 Opt	ion 2: A=6.9750, B=1424.255, C=213.210
Gasoline (RVP 13)				6.6746	H/A				0.9775	62.00 Opt	ion 4: RVP=13.00, ASIM Slope=2.5
Hexana (-n)				1.8518	N/A	H/A		0.0181	0.0070		ion 2: A=6.8760, B=1171.170, C=224.410
Isooctane				0.5558	N/A	H/A		0.0151	0.0017	114.22 Opt	
Haphthaiene C-10, H·8 Toluene				0.0023	N/A	H/A		0.0013	0,0000	128.16 Opt	ion 2: A=7.1463, B=1831.571, C=211.821
Xylene (-m)				0.3175	H/A	H/A			0.0064	92.13 Opt	ion 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)				0.1240	H/A	N/A		0.0448	0.0012	106, 17 Opt	ion 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"				0.0679	N/A	H/A		0.0349			ion 2: A=6.9980, B=1474.679, C=213.690
.,,				0.0931	N/A	H/A		0.0448	0.0009	106,16 Opt	ion 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair OCT	52.97 47	7.03 58.91	51.12	4.7880	H/A	11.74	62,408				
geusevo				0.9578	N/A	N/A		0.0188	0.8842	78 11 Ont	ion 2: A=6.9050, B=1211.033, C=220.790
Ethylbenzene				0.0846	N/A	H/A		0.0207	0.0004	106 17 Out	ion 2: A=6.9750, B=1424.255, C=213.210
Gasoline (KVP 13)				5.9700	N/A	H/A		0.7043		62.00 Opt	ion 4: RVP=13.00, ASIH Slope=2.5
Hexane (-n)				1.5887	H/A	H/A			0.0067	86.17 Out	lon 2: A=6.8760, B=1171.170, C=224.410
Isooctane				0.4443	N/A	N/A		0.0151	0.0016	114.22 Opt	ion 1
Naphthatone C-10, N-8 Totuene				0.0017	N/A	A/R		0.0013	0,0000	128,16 Opt	Ion 2: A=7,1463, B=1831.571, C=211.821
Xylene (-m)				0.2642	H/A	H/A		0.0972	0.0060	92.13 Opt	ton 2: A=6.9540, B=1344.800, C=219.480
Xylene (-o)		•	1	0.1013	N/A	H/A		0.0448	0.0011	106.17 Opt	ion 2: A=7.0090, B=1426.266, C=215.110
Xylene (-p) "Paraxylene"				0.0550	N/A	H/A		0.0349	0,0004	104.17 Opt	ion 2: A=6.9980, B=1474.679, C=213.690
•				0.0759	H/A	N/A		0.0448	0.0008	106.16 Opt	ion 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair HOV	46.96 42	2.88 51.04	51.12	4,2480	N/A	11/4	62.377				
Bettene			~ · · · · · ·	0.8042	N/A	N/A		0.0188	በ ፀብረብ	78 11 000	ion 2: A=6.9050, 8=1211.033, C=220.790
Ethylbenzene				0.0679	H/A	N/A		0.0207	0.0004	106 17 Oct	ion 2: A=6.9750, B=1211.035, C=220.790
Gasotine (RVP 13)				5.3018	N/A	N/A		0.7043	0.9803	62.00 Oot	ion 4: RVP=13.00, ASTN Stope=2.5
liexane (-n)				1.3486	N/A	H/A			0.0064	86.17 Opt	ion 2: A=6.8760, B=1171.170, C=224.410

TANKS PRO M 2,0 EMISSIONS REPORT - DETAIL FORMAT LIQUID CONTENTS OF STORAGE TANK, CONT.

Mixture/Component	Honth			(deg f)	tiquid Bulk Temp. (deg f)	•	Pressures Min.	(psia) Mux.	Vapor Hol, Voluht	t iquid Mass Fruct.	Hass	Hol. Height	Basis for Vapor Pressure Calculations
Isooctane						0.3341	H/A	. N/A		0.0151	0.0013	114.22	Option 1
Naphthelene C-10, H-8						0.0013	N/A	N//		0.0013	0.0000	128.16	Option 2: A=7.1463, B=1831.571, C=211.821
Toluene						0.2171	H/A	H/A	1	0.0972	0.0055	92.13	Option 2: A=6.9540, 8=1344.800, C=219.480
Xylene (-m)						0.0816	H/A	H/A		0.0448	0.0010	106.17	Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-o)						0.0438	H/A			0.0349	0.0004	106.17	Option 2: A=6.9980, 8=1474.679, C=213.690
Xylene (-p) "Paraxylene"						0.0610	H/A			0.0448	0.0007	106.16	Option 2: A=7.0206, B=1474.403, C=217.773
Gasoline RVP 13 with Sinclair	DEC	43.27	40.11	46.44	51.12	3.9415	H/A	H//	62.359				
Benzene						0.7206	N/A	H//	1	0.0188	0.0038	78.11	Option 2: A=6.9050, B=1211.033, C=220.790
£thylbenzene						0.0591	H/A	N//	1	0.0207			7 Option 2: A=6.9750, B=1424.255, C=213.210
Gasoline (RVP 13)						4.9223	N/A	N//		0.7043	0.9812		Option 4: RVP=13.00, ASTM Slope=2.5
ilexane (+n)						1.2167	N/A	W//	١	0.0181	0.0062	86.17	Option 2: A=6.8760, B=1171.170, C=224.410
isooctane						0.2699	H/#	-		0.0151	0.0012	114.27	2 Option 1
Naphthalene C-10, H-8						0.0011	N/A			0.0013	0.0000	128.16	S Option 2: A=7.1463, B=1831.571, C=211.821
Tolstene						0.1919	N/A	N//	L	0.0972	0.0053	92.13	Option 2: A=6.9540, B=1344.800, E=219.480
Xytena (-m)						0.0712	. N/A	N//	ı	0.0448	0.0009	106.17	7 Option 2: A=7.0090, B=1426.266, C=215.110
Xylene (-o)						0.0380	N/A	N #7/	١	0.0349	0.0004	106.17	7 Option 2: A=6.9980, B=1474.679, C=213.690
Xytene (-p) "Paraxytene"						0.0532	¥/#	N//	١	0.0448	0.0007	106.10	6 Option 2: A=7.0206, B=1474.401, C=217.773

TANKS PROGRAM 2.0 EMISSIONS REPORT - DETAIL FORMAT INDIVIDUAL TANK EMISSION TOTALS

Honths in Report:

January, february, Narch, April, May, June, July, August, Seplember, October, November, December

	Losses (ib:	3.);			
	Total			Total	
Liquid Contents	Vithdrauel	Roof-fitting	Rim-Seat	Standing	lotal
Gasotine RVP 13 with Sinciair	176.05	4854.96	656.77	5511.73	5687.78
Benzene	3.31	20.62	2.79	23.41	26.72
Ethylbenzene	3.64	2.03	0.28	2.31	5.95
Gasoline (RVP 13)	124.00	4750.74	642.67	5393.41	5517.41
Hexane (-n)	3.19	32.83	4.44	37.27	40.45
Isooctane	2.66	7.69	1.04	8.73	11.39
Naphthalene C·10, H-8	0.23	0.00	0.00	0.00	0.23
Toluene	17.11	29.60	4.00	33.61	50.72
Xylene (-m)	7.89	5.27	0.71	5.98	13.86
Xytene (-o)	6.14	2.23	0.30	2.54	8.68
Xylene (-p) "Paraxylene"	7.89	3.95	0.53	4.48	12.37
Total:	176.05	4854.96	656.77	5511.73	5687.78

ATTACHMENT E

EPA AP-42 "Interim" Process Fugitive VOC Emission Factors

NEW EQUIPMENT LEAK EMISSION FACTORS FOR

PETROLEUM REFINERIES, GASOLINE MARKETING , AND OIL & GAS PRODUCTION OPERATIONS

February 1995

The U.S. Environmental Protection Agency (IPA) evaluated data on equipment leak emissions from the petroleum rafining, gasoline markating, and oil and gas production operations gathered by the American Petroleum Instituta and the Western States Petroleum Association. Based on the analysis of the data and incorporation of comments from industry and state and local air pollution control associations, EPA is providing interim emission correlations to estimate emissions from leaking equipment at refineries, gasoline markating facilities, and oil and gas production facilities. Additionally, average emission factors for markating terminals are provided. These interim measures may change based on additional input from state and local air pollution control agencies and industry, but are acceptable to EPA from a technical standpoint for immediate use to estimate emissions from leaking equipment.

Since State/local programs may experience some transition time to accommodate new factors, the EPA suggests that any contemplated use of these factors in the near term for submitting information for trading, offsets or netting, 15% plans, or modelled attainment demonstrations, and regulations associated with these programs, be coordinated with the State in which the source is located.

The new equipment leak emission correlations require plant specific data to use in conjunction with the equations provided below. For situations where plant data is not available, estimates must use the existing average factors for leaking equipment from the document "Protocol for Equipment Leak Emission Estimates," EPA-453/R-93-026, June 1993 or the marketing factors provided here. The methodology and supporting appendices used to develop the factors presented below are available on the OAQPS TTM bulletin board (see files: leaks.meth, leaks.A, leaks.B, and leaks.C under Chief/AP42/Q&A). If you have any questions please call David Markwordt at (919) 541-0837 (FAX 0942).

FDA Correlation Approach to Estimate Emissions from Equipment Pieces

The correlation equations shown in the above table can be used to estimate emissions when the adjusted screening value (adjusted for the background concentration) is not a "pegged" screening value (the screening value that represents the upper detection limit of the monitoring device) or a "zero" screening value (the screening value that represents the minimum detection limit of the monitoring device). All non-zero and non-pegged screening values can be entered directly into the correlation equation to predict the mass emissions (kg/hr) associated with the adjusted screening value (ppmv) measured by the monitoring device.

The correlation equations mathematically predict zero emissions for zero screening values (note that any screening value that is less than or equal to ambient [background] concentration is considered a screening value of zero). However, data collected by the IPA show this prediction to be incorrect. Mass emissions have been measured from equipment having a screening value of zero. These default-zero emission rates are applicable only when the minimum detection limit of the portable monitoring device is 1 ppmv or less above background. In cases where a monitoring device has a minimum detection limit greater than 1 ppmv, the default-zero leak rates presented in the table are not applicable. cases, an alternative approach for determining a default-zero leak rate is to (1) determine one-half the minimum screening value of the monitoring device, and (2) enter this screening value into the applicable correlation to determine the associated default-zero leak rata.

In instances of pegged screening values, the true screening value is unknown and use of the correlation equation is not appropriate. Pegged emission rates have been developed using mass emissions data associated with known screening values 10,000 ppmv or higher and for known screening values 100,000 ppmv or higher. When the monitoring device is pegged at either of these levels, the appropriate pegged emission rate should be used to estimate the mass emissions of the component.

estimating petroleum industry VOC emissions, developed from the combined 1993 refinery, Correlation equations, default zero emission rates, and pegged emission rates for marketing terminal, and oil and gas production operations data^a

Santan de la constitue de la constitue de la constitue de la constitue de la constitue de la constitue de la c	1	······································		1	<u> </u>	<u></u>
i i i i i i i i i i i i i i i i i i i	$I.BAK = 1.51B-06\times(SV)$	$LRAK = 4.44B.06 \times (SV)$	$LRAK = 2.16R-06 \times (SV)$	$I.RAK = 4.82R.05 \times (SV)^{0.610}$	$I.RAK = 2.28R.06 \times (SV)$	$L.BAK = 1.32B.05 \times (SV)$
Peggel Chilsian Rafes (kg/hr)9 0.000 ppmy 100,000 ppmy	0,030	0.084	0.079	0.160	0,140	0,10
Peggert Emission	0.028	0.085	0:030	0.074	0.064	0.073
Thefault Zero Tentsjon Kole Tentsjon Kole	90·B5·L	3.12.07	2.01.06	2.48-05	7.813.06	4.013.06
Lynelservice	Connector/All	Plange/All	Open-Ended	Pump/All	Valve/All	OfficefAII

To estimate emissions: use the default zero emission rates only when the soreening value (adjusted for background) equals 0.0 ppmv; otherwise use the correlation equations. If the monitoring device

Default zero emission rates were based on the combined 1993 refinery and marketing terminal data only reglaters a pegged value, use the appropriate pegged emission rate. _

The 10,000 ppmy pagged emission rate was based on components acreened at greater than 10,000 ppmy, howsver, in some cases, most of the data could have come from components screened at greater than (default zero data were not collected from oll and gas production facilities).

100,000 ppmv, thereby resulting in similar pagged emission rates for both the 10,000 and 100,000 pagged levels (e.g., connector and flanges).

LEAK is the predicted mass emission rate (kg/hr) and SV is the screening value (ppmv) measured by the monitoring device. J

unly 2 data points were available for the pump 100,000 pagged emission rate; therefore the ratio of the pump 10,000 paggad amission rate to the overall 10,000 ppmv paggad emission rate was multiplied by the The "other" equipment type includes instruments, loading arms, pressure relief valves, stuffing hoxes, overall 100,000 ppmv pugged uminuten rate to approximate the pump 100,000 ppmv pagged eminuten rate.

Marketing Terminal Emissions Factors (based on 17 Marketing Terminals, rec. October 1994, calc. January 1995)

Equipment Type	Equipment Service.	Sample Size	Average Emission Factor (Kg/lir):
Fitting (connectors and flanges) ^a	Ges	1,394	4.1E-05
	Light Liquid	42_172	7.3E-06
Other (compressors	Ças	155	1.25-04
	Light Liquid	2_258	1.32-04
Pome	Light Liquid	777	5.3E-04
Vaive	Gas	873	L.JE-05
	Light Lionid	27.989	4.JE-05

² "Fixings" were not identified as flanges or connectors; therefore, the fitting emissions were estimated by averaging the estimates from the connector and the flange equations.

NEW EQUIPMENT LEAK EMISSION FACTORS FOR OIL & GAS PRODUCTION OPERATIONS

August 1995

The U.S. Environmental Protection Agency (EPA) evaluated data on equipment leak emissions from the oil and gas production operations gathered by the American Petroleum Institute. Based on the analysis of the data, EPA is providing interim average emission factors from leaking equipment at oil and gas production facilities. These interim measures are acceptable to EPA from a technical standpoint for immediate use to estimate emissions from leaking equipment.

Since State-local programs may experience some transition time to accommodate new factors, the EPA suggests that any contemplated use of these factors in the near term for submitting information for trading, offsets or nearing, L5% plans, or modelled attainment demonstrations, and regulations associated with these programs, be coordinated with the State in which the source is located.

If you have any questions piease call David Markwordt at (919) 541-0837 (FAX 0942).

Average Emission Factors for Oil and Gas Production Operations (kg/hr/component)

(sample size is indicated in parentheses)

	Equipment Type/Service				
Equipment Type	Ge	Heavy Oil. (<20 API Gravity)	Light OIE (520 APE Gravity)	Water/Light Oilas	
Connector	2.0E-04	7.5E-26	2.15-04	[.1E-34	
	(36.522)	(7.338)	(74.65-0	(2.45[)	
Flange	3.9E-04	3.9E-97	L.LE-04	2.3E-06	
	(11.356)	(3.213)	(Z3.581)	(677)	
Open-Ended Line	2.0E-03	L.4E-1)4	1.4E-03	2.SE-04	
	(1.030)	(479)	(2.578)	(125)	
Cther	8.3E-03	3.LE-35	7.5E-03	1.4E-02	
	(536)	(194)	(954)	(92)	
2	2.4E-03 (71)	NA.	1.3E-02 (162)	2.4E-35 (17)	
Vaive	4.5E-03	8.4E-16	2.5E-03	9.3E-05	
	(11.752)	(2.07)	(23.723)	(724)	

*Water/Light Oil emission factors apply to water streams in light oil service with a water content greater than 50%, from the point of origin to the point where the water content reacties 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

^bThe *other* equipment type includes compressors, displarens, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents.